Dept. of Computer and Information Sciences
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Ethics and Technology in a Library Context

This dissertation was submitted in part fulfillment of requirements for the degree of MSc Information and Library Studies.

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Abstract

Background: Study of relevant literature reveals that, while the subject of ethics is discussed in librarianship and in relation to technology, there is a lack of in-depth exploration of the place of ethics in the implementation stages of introducing new technology, as well as a lack of current research into perceptions of ethical challenges amongst practicing professionals in the field.

Aims: This study aimed to determine what current and future technologies are relevant to libraries; evaluate the use existing policies for tackling ethical issues; establish whether library staff and users recognise the ethical implications of implementing new technologies and how important these are considered on an operational level; and, finally, develop a set of recommendations for tackling ethical dilemmas raised by new technologies in the future.

Methods: A literature review was undertaken to establish the research context and identify key concepts and themes. These were further developed via analysis of a survey disseminated amongst neo-professionals undergoing an Information and Library Studies postgraduate course at the University of Strathclyde. The themes which emerged were used to develop questions for interviews which were conducted with library professionals from a variety of sectors, to investigate the implementation processes in libraries and the place of ethics within them.

Results: The research revealed that while there was awareness of ethical codes and policies, these were not often consulted in practice. A high awareness of the subject of ethics was also found to exist, although there was a distancing from the 'language of ethics' and a lack of any formal processes for dealing with dilemmas. Recognition of potential ethical challenges from technology in libraries was coupled with a reluctance to identify these as new issues. Librarians were often found to have a low level of participation in implementation and planning processes as the wider organisations the libraries were a part of exerted a high level of control over these, although there were exceptions. It was commonly recognised that the rapidly changing arena of technology may continue to exacerbate ethical challenges in libraries and that professionals should attempt to exert more control over their implementation. While a strict set of guidelines were agreed to be unbeneficial, there was a call for a more proactive attitude from the profession and a greater level of discourse regarding these issues, possibly coupled with an educational program which should be the responsibility of professionals in this area.

Conclusions: The research proposes several recommendations for the profession as a whole and for practitioners. Further exploration into the relationship between libraries and the wider organisation they are a part of should be undertaken; existing policies from CILIP, IFLA and wider organisations must be highlighted more effectively; CILIP should take a more active role to aid in the proper selection and implementation of technology and; the profession should consider forming an ethical committee or group of professionals whose role it is to collect examples of ethical issues encountered in various sectors and how best to deal with these, especially in the area of emerging technologies. This will encourage good practice in regards to these potentially problematic technologies, as well as incorporate ethical considerations more naturally into the planning process. At an operational level a roadmap is proposed advocating: the forming of committees within individual institutions dedicated to these issues; greater involvement at the planning stage; increased consultation with stakeholders and; regular audits into how ethical challenges are being handled.

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Chapter 1: Introduction

It has been widely accepted that the very nature and role of the library has changed with the advent of new technologies. The introduction of computers, the Internet and various other technologies has resulted in a reshaping and rethinking of library services, library space and, indeed, the role of the library itself. While the implementation of these technologies is a challenge for libraries, it is not the only one they face. It can be argued that a more networked and connected world raises new and complex ethical implications. An initial review of current and key literature was conducted to explore the current state of ethical debate in the library and information profession; consider the place of new technologies within those debates and the extent to which they raise new ethical dilemmas; and establish a context for further research into the potential gap between the ethical concerns which may be raised by implementing new technologies and the perceptions in the profession of the validity of these concerns.

1.1 Research Context

Greater dissemination, visibility and impact, and, above all, greater access, are the key goals of today's library service (Anon, 2012).The importance of technological advances in libraries has been regularly noted as, without the new technologies of the past several years, virtual reference services, personalised OPACs, downloadable media and many other important services would not be possible (Casey and Savastinuk, 2006). Greater emphasis has been placed on the need for libraries to be adaptable and ready to meet rapidly changing user needs, while also reaching as many people as possible and providing the convenience and efficiency which those users have come to value (Thornley et al, 2011).

1.1.1 New ethical considerations

Cottrell (1999), writing over a decade ago, noted that new technologies may require "established ethical questions" to be viewed in a new light and lead to the emergence of new questions. However, she also noted the lack of vigorous debate on this issue in literature as the profession has been "so bus[y] keeping up with technology" that they may not have properly considered the implications. An indicative view of the literature reveals that this state of affairs may not have changed significantly, although discussions of technology in libraries have considered possible threats to privacy and confidentiality, issues of service versus access and questions regarding the role of the librarian. The librarian must consider their varying duties to library users, wider society and the state, all of which can clash and create ethical dilemmas which libraries must carefully navigate around.

1.1.2 The value of ethical codes

McMenemy (et al, 2007) describes ethical discussions as those philosophical examinations which relate to individual choices and actions and their wider consequences and impacts in society. Both Gorman's guiding principles and Ranganathan's five laws provide doctrines and values at the heart of the library and information profession to which professionals can adhere when tackling ethical challenges. Formalising such principles is valuable as it assures the wider society that professionals are adhering to a set of shared values which form standards of appropriate behaviour, and, thus, earns the respect of that society (McMenemy et al, 2007).

Despite the apparent value of formalised codes, it is also recognised that the clash of "equally valid but mutually conflicting values" creates ethical dilemmas for libraries, and it is debatable whether any set of ethical guidelines, no matter how robust, would aid in resolving them (Cottrell, 1999). Sturges (2003) states that it would be impossible to produce one set of codes which will adequately address all future ethical concerns and argues that an "open and multi-directional" approach is preferable to a set of codes which attempt to close off the discussion. Thornley et al (2011) define an ethical dilemma as "a scenario in which there are competing and irreconcilable duties or obligations in which the fulfilling of one duty will result in the neglect of another." The article goes on to suggest that one way to solve these dilemmas is to examine the roles of participants to identify and clarify which obligations should be their priority and maintains that applied ethics should consider future situations, as well as exploring those which currently exist. They should "anticipate and reflect upon possible unethical use of technology in order to better develop policy to prevent it", rather than playing a "purely reactive role" (Thornley et al, 2011).

1.1.3 Core values

Preer (2008) stresses that such values are essential as good ethical practice is not the same as good customer service or proficient management - many difficulties arise when defining good ethical practice as there are no strict rules to adhere to. Preer identifies the core values of the profession as "providing service, ensuring access to information, avoiding conflicts of interests, and protecting patron confidentiality." She also adds that ethical standards must evolve and change as the profession does, while drawing on the experience of generations gone by, in order to tackle future challenges. It is interesting to note that many trainee librarians and users of libraries are unaware of the ethical dilemmas that library professionals face. This may be a result of the focus placed on the logistical challenges of introducing new services, rather than potential wider issues (Preer, 2008).

There is apparent agreement that libraries are subject to certain professional duties and obligations, but also that these are liable to change and evolve over time. A core set of values informed over generations of professionals is recommended to maintain the role of the library – and the librarian – although they must also be adaptable and proactive when addressing technology.

1.1.4 The implications of technology

A number of concerns in regards to the implications of new technologies in libraries have been discussed in the literature. The digitisation made possible by technology has blurred the boundaries of the characteristics of information and has created "greater extremes" in terms of how information can be created, accessed and disseminated. People can create their own information and this information can be more easily tracked or stolen, while previously inaccessible items and resources can now be viewed over the internet by a growing global society in which privacy is in danger of becoming an "old-fashioned concept" (McMenemy et al, 2007).

Studies by Gibb (2011) and Thornley (2011) have also found that implementing RFID technology in libraries may raise ethical dilemmas due to conflicts between the goal of meeting user needs, which increasingly revolve around technology, and protecting the privacy of said users. Society is now more likely to accept day to day breaches of privacy - such as information collected via loyalty cards – and a culture has emerged in which privacy is no longer implicitly guaranteed but finds users explicitly 'opting-out' to avoid the sharing of their personal data.

1.1.5 Research gap

There has been little research conducted into how library staff deal with these issues in practice, whether there is guidance in place and whether staff or library users feel that these discussions are relevant in day to day practice. This analysis of the literature has demonstrated that there may be a shortfall in library policy in terms of preparing for future ethical dilemmas and it is possible that little thought has been given to such issues, given the prevalence of the technology. There is arguably a lack of staff and user knowledge about the capabilities of new technologies, what channels exist for collecting their information and how that information is used. While the ethical implications of new technologies and the possible threats they present to the values of the profession are recognised to an extent, it is unclear whether these are considered prior to implementation. There is also a perception that stronger guidelines for dealing with ethical challenges are not necessary.

As new technologies and the increasing prevalence of digital materials create a more networked world where the fundamental values of the library and information profession may be undermined, those in the library profession must have confidence that they are responding in a manner appropriate to those values which they have upheld for generations. Further research would aim to establish what, if any, emphasis is being placed on ethics in relation to new technology, what policies and guidelines currently exist, and what actions could be taken to enable librarians to effectively tackle ethical dilemmas which may arise in the future.

1.2 Research Questions

In response to this, this research aims to answer three key questions:

1. What technologies are currently present in libraries and what new technologies are likely to be introduced in the future.
2. What the characteristics of these technologies are and whether they possess any ethical implications.
3. What policies currently exist for tackling ethical issues in libraries and whether they are applied specifically to new technology.
4. What perceptions of these technologies, and the importance of ethical considerations in relation to them, are held by staff and users in the library sector.

1.3 Research Objectives

It is hoped that in answering these questions this research will:

1. Determine what current technologies are being used in libraries and what new technologies are likely to be introduced in the future.
2. Evaluate the use of existing policies and codes in library institutions for tackling ethical issues surrounding technology and discover whether there have been any sanctions imposed upon particular institutions.
3. Establish what perceptions exist amongst library staff and users regarding the ethical implications of implementing new technologies and how important these are considered on an operational level.
4. Develop a set of recommendations for tackling ethical dilemmas raised by new technologies in the future.

1.4 Research Methods

There were a number of methods chosen to conduct this research which were carefully selected in light of their previous successful application in the field. A further literature review was conducted in order to further inform the research, as well as to develop surveys which were disseminated amongst students in Information and Library Studies (ILS) at the University of Strathclyde. The surveys aimed to give an indication of the perceptions of the ethical challenges related to new technology, and whether this is considered to be important to libraries, amongst students who will shortly be joining the profession. The results of the surveys also informed the design of the interviews which were conducted amongst library staff with varying levels of responsibility.

Interviews were intended to establish the current policies in place when implementing new technology and whether ethical considerations affect the decisions of what should be introduced and how. The data collected via these methods was anonymous and kept in encrypted formats in order to ensure the protection of personal data. It was coded and analysed using appropriate software and is presented here in easily viewed formats.

1.5 Learning Outcomes

In terms of personal development, during the course of this research the author hoped to develop interview skills, as well as gain experience in quantitative analysis of data taken from surveys and the coding of qualitative data through specialised software. Furthermore, it was hoped that a deeper understanding of the technological landscape affecting libraries and of the librarian's role as intermediary between information, technology and users, as well as the priorities of this role, would also be reached.

1.6 Chapter Plan

- Chapter two: Literature Review - contains an in-depth literature review further exploring the context of this research.
- Chapter three: Research Methodology – gives further details of the methodology used to conduct the research.
- Chapter four: Analysis and Findings – provides the results of the surveys and interviews conducted and analysis of those results presented in a clear and concise format, with a copy of the survey and interview questions available in the appendices.
- Chapter five: Conclusions - presents findings and conclusions of this research, as the basis for a proposed set of guidelines and recommendations to the profession.

Chapter 2: Literature Review

This literature review will be split into three sections. The first will explore and discuss current literature in order to ascertain what principles and values exist in the profession of librarianship to guide ethical debate and the place of ethical codes and practice. The second will highlight discussions of ethics particular to technology, examine their relevance to the field of librarianship and the extent to which the ethical challenges they raise have been acknowledged. The final section will explore whether other stakeholders perceive the discussion of ethical challenges related to new technology to be important to the library profession. Consequently, the current state of ethical debate in the library profession will be established and the place of new technologies within those discussions will also be better understood.

The goal of this chapter is to achieve a critical understanding of key issues and to better inform the reader in these areas so that a clear focus and justification for research in the area of ethics and technology in a library context is reached.

2.1 Ethical discussions in the library profession

Ethical practice in librarianship was not codified until the American Library Association (ALA) did so in 1938, and ethics were rarely formally discussed in the profession before the 1970s. An ethical code was not implemented in the UK until that of the Library Association (LA) in 1983 (McMenemy et al, 2007). The Chartered Institute of Library and Information Professionals (CILIP) provides a set of ethical principles for guiding the profession in the UK and those in breach of this code could, in theory, face disciplinary action (CILIP, 2012). The International Federation of Library Associations and Institutions (IFLA), who describe themselves as "the global voice of the library and information profession", also offer a code of ethics, along with a listing of numerous national codes of ethics from various countries (IFLA, 2013). However, it is not clear how strictly these guidelines are followed in libraries, or whether they are considered prior to implementing new technology.

Although the language of these professional codes has been steeped in the language of book and print, librarians have historically been keen to adopt multimedia formats. This reflects how the actual policies referred to in libraries can be slow to catch up to the current state of society – while good practice may be implicitly known throughout the profession, it is important that concrete resolutions be made in order to aid future decisions and ensure consistency across the profession. Without such policies, where do librarians turn for guidance?

2.1.1 The values of librarianship

There has been significant discussion in the literature regarding the values of librarianship and how these should underpin codes of practice as such "internal intangible values" help to define the library profession (Preer, 2008). Indeed, as Preer points out, establishing professional statutes for librarians was the initial purpose of the first suggested ethical codes, as well as outlining the duties and obligations of that profession, and library values are implicit in all decisions of access and service provision. Librarians came to be seen as central to the "professional service" that was being advocated and establishing the "fundamental ethical obligations" that must be met to provide these services was essential. These arguments would suggest that the librarian must be deeply involved in any ethical discussions and in the implementation of new services.

However, it has been argued that librarians have historically lacked sufficient agency in such decisions and that this trend has not been adequately addressed. Hauptman (2002) points out that while those in the library and information profession may have become more aware of ethical issues and changing social pressures, as a whole there is still a tendency to confuse ethical considerations with legal sanctions, where there is any consideration of ethical issues at all. He goes on to suggest that librarians often do not give proper thought to the ethical challenges they deal with because it is believed that they do not arise very often and can seem too trivial to raise concerns. Furthermore, the fact that librarians must operate within a larger organisational policy which will have the final word in dictating how such challenges are to be dealt with, takes some of the responsibility away from them. Hauptman points out that these are merely "convenient excuses" which have led to librarians becoming exempt, or exempting themselves, from ethical discussions so that they are operating in an "ethical vacuum". This is a habit which must be broken as the increasing use of technology and the Internet, as well as increasing pressures to meet the demands of a public primarily concerned with convenience and efficiency, continue to compound the issues librarians face.

Hauptman asserts that despite the diverse nature of these new challenges, the "ethical structures" which have served librarianship previously should be suitable for tackling them as they are based in a set of values that continue to endure. In exploring the tenets of deontological and consequentialist perspectives as held by Kant and Mills respectively, Hauptman finds that strict adherence to one or the other is of little benefit - Kant argues that you should adhere to a strict set of principles, regardless of consequences, whereas Mill maintained that the consequences of an action determine whether it is right or wrong. Information professionals will act as most do in regards to ethical considerations and assess the potential consequences of an action, while holding to certain values and beliefs which can be adapted to fit the situation.

McMenemy (et al, 2007) notes the existence of a school of thought which proposes that this "complacency" towards ethical practice "was based on society's ignorance of what librarians actually do as much as our lack of desire to define an ethical benchmark for professionals in our industry". Additionally, Jefferson and Contreras (2005) found that literature in the profession focused mainly on the history of ethics, revising codes or the interpretation of ethics, rather than discussing new ethical challenges. The apparent lack of significant discourse in regards to the ethics of technology may suggest that this perception has not changed and further research would seek to discover whether this is the case.

Gibb (2010), when discussing the processes involved in implementing RFID tagging, points out that ethical policies are a governance issue and library managers have a responsibility to ensure processes conform to an "ethical framework". Additionally, librarians hold an important link between users and these processes and services. Gibb goes on to state that, "operational imperatives ("does this work?") should not be allowed to override the ethical ones ("does this work appropriately?")".

There therefore seems to be broad agreement that the values which have underpinned the library profession for generations provide a foundation from which all ethical debates can be solved or from which guidance can be sought. Additionally, it is emphasised that librarians play a critical role in such

discussions. However, this can become problematic for librarians as tensions arise from the multiple stakeholders to which they have a moral duty.

2.1.2 The moral obligations of the librarian

Thornley (et al, 2011) argues that an ethical dilemma arises in the clash between "the principles of protecting privacy and that of protecting security". An ethical dilemma can be a situation in which doing the right thing may have consequences or where two obligations exist and fulfilling one necessarily means neglecting the other. This clash has often been recognised in philosophical thought, for example in the tension between consequentialist and deontological schools of thought as mentioned above. Thornley suggests that the "overarching ethical theory" is important for tackling these dilemmas and the "primary role of the participants" should be considered when there is a clash in principles in order to ascertain which is the priority. This is recognised as being particularly difficult for librarians as the "promotion of knowledge" is a very "ethically ambiguous role" and tensions exist between the librarian's multiple moral obligations. Thornley (et al, 2011) argues that in most cases a moral duty does not exist towards the information objects themselves, but instead to the people who value and/or created those information objects. Moral duties inarguably apply to users, but debate arises about what they are and how best to serve them. For example, RFID tags have many benefits for the preservation of information objects and the efficiency of stock management. However, ethical dilemmas arise when information about users is under threat. Librarians have a duty to protect user privacy by maintaining confidentiality of their borrowing and information use and this can conflict with the obligation to provide an efficient service.

There is also tension between the duty to protect the privacy of the users and any duty to the state and society at large to provide information on potentially harmful individuals (Thornley et al, 2011). The level of threat they present must be carefully considered to determine whether infringing on privacy can be justified. For example, the U.S. Patriot Act which passed in 2001 gave law enforcement authorities broader powers of access to user information. As more information about patrons is stored, so the possibility of it being accessed illegally, incorrectly or unethically increases (Preer, 2008). The reasonable expectations of privacy that users hold must be balanced against the duty of the librarian to aid the state in the apprehension of those who pose a legitimate threat (Thornley et al, 2011).The "moral legitimacy" of the particular state must also be considered. However, all of these situations pose inherent difficulties. At what stage do threats become legitimate, what level of suspicion justifies the infringement of privacy, and against which users is it justified? The combination of changing political and legal backdrops and new technologies means that libraries must be conscious of the potential for unjustified infringements on privacy and have policies in place which make it as difficult as possible for this to occur.

Bellamy (et al, 2005) further explores how the current "climate of over-zealous data sharing" threatens the values of privacy and confidentiality and has operational implications. It is important that public bodies such as libraries retain the trustworthiness that they have historically been afforded by users by properly safeguarding personal data in the way that users have reasonably come to expect. The ethical dilemmas posed by these tensions between confidentiality and data sharing are gaining the spotlight in many management policy considerations, although day-to-day staff are being forced to tackle these challenges as best they can while policy is being decided. Bellamy's study focuses on health and social workers and law enforcement, although it would be

interesting to explore whether this is the case in libraries - while the potential fallout of data-sharing mishaps is arguably less severe, it is possible that ethical implications are not taken as seriously as they might be. The gap between articulating principles and operational implementation, as well as the tension between conducting day-to-day business and decision-making while estimating the far-reaching consequences of a particular technology, is one which should be further explored in libraries (Bellamy et al, 2005).

In summary, librarians face a number of difficulties when tackling ethical debates – they have numerous responsibilities to their users, the organisation they work for and the state and wider society within which they are operating. The values which have upheld the profession for years provide good basis and guidance for handling ethical challenges, but lack explicit frameworks. Furthermore, there is a lack of acknowledgement of the ethical dilemmas inherent in the profession which makes it difficult to justify the time and effort needed to address them.

2.2 Ethics and technology

 'Technology' in the context of this research refers to those information technologies which have affected libraries in a multi-layered fashion, i.e. which have to be considered from the business, data, application and technological viewpoints of an enterprise architecture framework. MacMillan Encyclopaedia defines technology as, "the application of scientific principles and engineering techniques to building, communications, healthcare, industry, agriculture, warfare, etc" (MacMillan Encyclopaedia, 2003). The Bloomsbury Guide to Human Thought takes this further: "Technology is the application of scientific principles to the problems of everyday living. It …requires analysis of a practical problem, pondering of the principle(s) involved in solving it, and a combination of practical and intellectual inventiveness in devising means to applying that principle in the most elegant and least expensive way" (Bloomsbury Guide to Human Thought, 1993). This research acknowledges the practical definitions of technology, as well as the more sociological viewpoint which defines technology as "a social product which incorporates both the 'hardware' of human artefacts such as tools and machines and the knowledge and ideas involved in different productive activities" (Collins Dictionary of Sociology, 2006). More specifically, 'new technologies' can be described as those technologies which are more advanced or automated than those previously in place (Collins Dictionary of Sociology, 2006).

Therefore, it is not only the physical hardware that may pose challenges, but also the more abstract aspects of technology. For example, as an institution which has access to large stores of data content, librarians must consider the informational aspect of technology from a data and application viewpoint – it is not only the physical hardware that must be assessed, but the context, the processes in place and the potential impacts.

This raises a number of questions which the profession must be willing to ask and prepared to answer. For example, what kind of data collection do these new technologies make possible, or might they make possible in the future? What data will be collected by the library and how will it be utilised? And so on.

A wide range of literature was consulted in order to explore how new and emerging technologies are being implemented in libraries and whether these different facets are being considered, as well as to what extent policy is consulted prior to or during implementation and how effective it is.

2.2.1 Technology as a tool for increasing access

Foster and McMenemy (2012) in their study of 36 codes of ethics from national professional associations across the world found that a "clear global consensus" existed for only three of the eight values identified by Gorman (2000): service, privacy and equity of access. The conflict between providing a service and other obligations has been previously noted. This section will focus on the effects of technology on access - privacy will be addressed in the next section.

Schmidt (2013) describes a "preoccupation" with technology and its ability to increase access, which is in danger of becoming an end in itself rather than merely the tool which it should be. He goes on to argue that the increasing use of the term 'user' reflects how we increasingly define people by the tools they use and how they use them, so that the tool becomes the focus, rather than the user. This may reflect the tendency within librarianship to become preoccupied with keeping up with and implementing technology as it is done in the commercial sector, with the side effect that the purpose particular to libraries may be forgotten. As Schmidt points out, "everything we know about technology can be put in service of supporting meaningful goals" rather than accepting this apparent complacency towards bettering the use of technology and more seamlessly integrating it into the library service, so that it can be used to its best potential. Technology should be used to respond to user needs and should be "useful, usable and desirable" (Schmidt, 2013).

Since advances in technology began rapidly picking up pace, debate on the subject seems to have gained a slight edge of panic. There is no shortage of articles and conferences which warn that the library profession must be prepared to embrace new technology and get as much of it as possible into libraries to please the demands of their users, or else they face extinction. Challenges of competition from suppliers and increased 'customer' expectations are highlighted and regularly fretted over (Sommers, 2005). The need to consider what best practices will be adopted as objects become 'smarter' and the world becomes more networked and connected is often discussed, as well as the increasing demands on privacy and confidentiality. The importance of libraries recognising the existence of and need to guard against, spam, information overload and viruses is highlighted, although this seems something of an afterthought during the actual implementation process and the place of ethical codes in this process is not clear.

However, the profession of librarianship has obligations and responsibilities which differentiate them from other sectors and the advances of technology have resulted in ethical discussions which are specific to the field of librarianship. With a wealth of seemingly endless information now more easily accessible than ever, questions of accuracy, currency, comprehensiveness, reliability, inappropriate materials, and so on, have become more pertinent. As a result, the problem of organising and evaluating information has become decidedly more complex for librarians (McMenemy et al, 2007).

The increased availability of information has also resulted in a great deal of discussion regarding censorship. The importance of the Internet in reaching a wider audience is clear, and it has many educational purposes, as well as offering a variety of formats which increase impact. However, it also arguably raises "new hazards for the young and vulnerable" (Preer, 2008) as it allows a much greater level of access to harmful, controversial or offensive material and increases the possibility of coming across this material accidentally. It can be argued that these possibilities have always existed –

pornography can of course exist in book format as well – however, the opportunity for accessing such material is significantly increased by these technologies.

This demonstrates that the implications of utilising new technology in libraries do raise ethical concerns and that these are being discussed in literature in the profession. However, there is little evidence that these debates are making it as far as the frontlines or that they form a part of the planning process at all.

2.2.2 The informational role of technology and threats to privacy

Gorman (2000) noted that technology increasingly allows infringements upon privacy, which he identified as one of the core values of librarianship and advocated constant vigilance against its erosion. Privacy is recognised as a core value of ethical codes of librarianship across geographical boundaries and even in those nations where privacy is prohibited by law, again showing the potential for a clash between ethical and legal rights and obligations, as well as its importance to the profession (Foster and McMenemy, 2012).

Soper (2013) examines the results of surveys carried out by the Pew Internet Project which found that a high percentage of users would be interested in personalised accounts which provide recommendations such as those offered by Google and Amazon. However, it is noted that privacy concerns may prevent such a service from being offered without some kind of 'opt-in' option as discussed by Gibb (et al, 2010), thus highlighting the fact that libraries rarely make use of the huge amounts of valuable data about users collected through Library Management Systems (LMS).This arguably shows commitment to providing a service which can be trusted to preserve user privacy and confidentiality, although given the increasing pressure that libraries are under to match services offered by commercial providers, it is worthwhile to consider how long this attitude will be viable. Managers should not be pressured into implementing new technologies in an effort to provide new levels of service without careful consideration of the possible risks (McMenemy et al, 2007) although it is not clear how severe such risks would need to be for libraries to forego the potential benefits (Thornley et al, 2011).

Gibb (et al, 2011) noted that public response to a San Francisco library's plan to introduce RFID technology expressed concern over the potential for extrapolation on patron lifestyles based on reading habits, such as sexual orientation, politics, etc. (Garofoli and Podger, 2007 in Gibb et al, 2010). There is also a potential for this technology to be used for monitoring reading habits, for Smart shelves to "monitor customer behaviour", 'hotlisting', and even tracking patron movements outside of the library, although that is currently unlikely. The concern is that the use of RFID tagging may threaten the user's "right to informational self-determination", i.e. "the choice of when and how to provide information about themselves in order to retain their autonomy." The potential dangers of such technologies must be highlighted and such issues should be addressed by conducting proper research prior to implementation.

Gibb (et al, 2010) also recommends that users be offered certain rights when RFID technology is being used. These include: informing users of the use and location of tags; the right to opt in (rather than opt out) of "RFID data capture for profiling"; the right to have RFIDs "destroyed, removed or deactivated at the point of sale" if asked for, although this can be difficult when items are being lent rather than sold; and the caveat that if users opt out of data capture or request deactivation of RFIDs, they should not be discriminated against because of this. Additionally, privacy enhancing

technologies (PETs) can be used to deactivate tags based on user preference and full bibliographic records should not be stored on RFID tags as this would make it possible for individuals with compatible reading devices to access potentially sensitive information about that person's reading habits. They maintain that only "unique identifier[s]" should be stored (Gibb et al, 2010).

Clearly, issues surrounding threats toward privacy have been considered and ways to safeguard against them have been suggested. Once again, however, it is not clear that the potential for such problems is being properly prepared for at the planning stage.

2.2.3 The place of library policy in response to new technologies

There is consensus in the literature that some changes have been made to library policy in order to respond to emerging technologies and that this is an important development which must be addressed. Preer (2008) points out that "…librarians have sought to apply existing standards in an environment of increasingly rapid technological change" and Thornley (et al 2011) states that the guidelines provided by the ALA, if followed, can prevent invasions of borrower privacy, although it is unclear to what extent such guidelines are being followed or whether there have been any instances of disciplinary action where they are not.

Sollie (2007) explores the importance of "uncertainty", which he claims is a facet of technology development which is not often addressed in ethical debates. He states that the increasingly complex technological environment can have serious and unforeseen consequences for human beings and the environment, and this makes evaluating technology difficult both retrospectively and proactively. He proposes a methodology for "morally evaluating technology developments" and argues for a proactive approach to applying ethics in relation to technology.

There has been an increasing focus placed on the importance of developing guidelines for dealing with technology. For example, in 2011, the Association for Library Collections and Technical Services Preservation and Reformatting Section began developing guidelines for digitising content in a way that will best ensure that content is preserved. The storage of digital collections was similarly addressed at the Designing Storage Architectures (DSA) meeting held in 2012 in Washington, DC (Anon, 2012). Such projects demonstrate that the profession recognises the challenges inherent in implementing new technologies and that common guidelines for the profession would be a great advantage. It is suggested here that guidelines should exist not only for the logistical elements of introducing technology, but also for the ethical issues raised by them, and that these should be properly utilised.

The evolution of library policy can also be seen in the involvement of the ALA in objections to proposed legislation which would restrict access (Communications Decency Act, 1996), demonstrating dedication to providing access to all materials deemed appropriate under the law, although the Children's Internet Protection Act (2001) was still implemented despite these interventions (Bertot et al, 2011). This legislation was drafted in response to concerns regarding access to offensive material on the Internet, and ruled that financial aid could be denied to libraries that did not possess the prescribed level of Internet filtering. As Preer (2008) points out, this is "a classic ethical dilemma in which library boards must decide whether to forego federal aid that supports of [sic] library services in order to provide maximum access to information." This emphasises that in a "new networked world", while traditional ethical standards still apply, they may need a greater level of clarity and confidence to operate effectively in a different environment. On

the one hand libraries wish to expand access to information in all formats, but on the other there are concerns that "much of this information is antithetical to the standards for quality and civility they have traditionally maintained" (Preer, 2008).

Chiak and Howland (2012) encourage those in the library profession to "integrate ethical analysis into all aspects of operations and decision making" and noted the tendency to rely on the fact of legal permissibility as a sign of good ethics. They argue that if there are not stringent policies in place or nothing to suggest the importance of behaving ethically, one ethical violation can lead to another and create an institutionalised disregard for these challenges.

2.3 Ethics from the perspective of other stakeholders

"The average person is highly unlikely to have given a second – or even a first – thought to the question of the professional ethics of librarians." (Lindsey and Prentice, 1985 in Foster and McMenemy, 2012)

Although ethics were not widely discussed in librarianship before the 1970s, Gorman (2000) and McMenemy (et al, 2007) amongst others have noted that librarians have become more likely to consider professional standards and the value of what they do, as well as being more eager to attempt to communicate that value to society. Furthermore, the existence of numerous organisational codes of ethics, even in countries where values such as privacy are in direct contradiction with state laws, shows that they are recommended (IFLA, 2013). However, from a review of the literature and reference to numerous examples of the implementation of various new technologies in libraries, it is clear that the perspective of users in regards to ethical challenges is rarely considered. In fact, based on the above quote, it is more likely to be assumed that users of libraries have no opinion on such matters.

Usherwood (1980) cites a survey by Bourner in 1978 which found that "librarians believed that the public ranked librarians alongside bank cashiers and chiropodists as a profession, and furthermore that librarians agreed with this ranking" (Foster and McMenemy, 2012). It would be interesting to find if that perception has changed and explore the notion of trust in librarians, i.e. that they are neutral brokers who do not and should not make value judgements, but simply facilitate access and respond to need.

A general overview of the literature has found that users are more often surveyed in order to: ascertain their awareness of the many services offered by libraries; gather information on what they would like to see offered in future; or to determine their satisfaction with a service (Boakye, 1999; Rapp, 2011). Those which describe and recommend practices for implementing technology or which are assessing its effectiveness, did not mention whether ethical codes were consulted at all, even when the library was placed within a larger institution, such as a school (Sharp, 2005; Mashriqi, 2011; Thomas, 2012; Fialkoff, 2012).

2.4 Summary

In summary, the literature consulted was not found to be greatly illuminating on the subject of ethical considerations or the extent to which policies are being utilised in an operational context, though the methods of implementing new technology are being documented to some extent. The core values within librarianship are recognised and discussed as providing a basis for meeting ethical challenges, although the existence of such considerations outside the literature is questionable. It was hoped that collection and analysis of empirical data via surveys and interviews with librarians may give a clearer picture of whether this is considered to be an important part of the planning and implementation process in libraries, as well as the perceptions of ethics and the potential impacts of new technologies held by professionals in the field, thus taking steps towards addressing this gap in research. The following chapter will detail the selection and design of the research methods used to collect this data.

Chapter 3: Methodology

This section will illustrate the devices developed to collect data which responds to the gaps in existing research identified in Chapter 2. In the previous chapter it was ascertained that, despite considerable discussion and extrapolation in the literature regarding the ethical responsibilities of the library professional and the implications of new technology upon these, as well as the existence of multiple professional ethical codes in nations with a variety of cultural values, there is little evidence that ethical dilemmas are being explored or addressed during the planning and implementation stages of introducing new technology into libraries. Furthermore, in the literature consulted, while users are often canvassed regarding their opinion of new technology in libraries, ethics plays little to no part in the questions being asked of them.

In light of this, there was perceived to be sufficient need for further data collection to explore the extent to which ethical policies or codes are consulted and the perceptions of both library staff and users of the importance of ethical considerations. The data was collected from multiple library sectors, in order to provide a comparative aspect and explore the effects of the multiple moral obligations which can arise for librarians and whether such issues are highlighted to a greater or lesser extent depending on the kind of library. By comparing theory with practice via analysis of empirical data it was hoped that the research would gain a more comprehensive view of the place of ethical considerations within the practical aspects of the profession, as well as the lessons that may be learned from such analysis.

The bulk of the data collected was obtained from professionals working in the field of librarianship, and, while a full study of user perspectives was considered outwith the scope of this research and may need to be addressed via further studies, it was hoped that the initial surveying of a small group of neo-professionals in the field would provide valuable insights and aid in the identification of key themes and concepts.

The following sections will provide details of the research strategy employed to address the issues identified above, as well as the means of collecting data for analysis, including site and sample selection, and the method of analysis employed. Any potential limitations and problems with the chosen research strategies will be highlighted in Chapter 5 as part of the conclusions of this research.

3.1 Research Approach/Strategy

In Chapter 1, four key objectives were identified which this research hoped to fulfil (see section 1.4). Objectives one and two were explored via the conclusions stated as part of the literature review in Chapter 2, but were felt to require some insight from professionals currently working in the field to be fully satisfied. To accomplish this and complete objective three, two further research methods were decided upon:

1. A survey of Information and Library Studies (ILS) postgraduate students at the University of Strathclyde - to gain something of a user perspective of ethics in librarianship and to aid in identifying emerging themes amongst neo-professionals which may inform the interview questions.

2. Semi-structured interviews of library staff from a number of different library sectors - geared towards ascertaining the place of ethics in relation to operational considerations, what technology is commonly being implemented in libraries and subjective viewpoints of these technologies.

The research generally followed a grounded theory approach, though a literature review was also conducted, in order to inform the content of the interviews and surveys. This approach allows conclusions and recommendations to be formed based on the findings of the research, without the need for an initial hypothesis as "concepts are related and developed around a core via a process of on-going comparisons" (Heath and Cowley, 2004).

The majority of the research is qualitative in nature, as the subject of ethics necessitates the examination of "intricate details about phenomena such as feelings, thought processes, and emotions" that can be problematic when utilising other methods (Strauss and Corbin, c.1997). Quantitative research more often relates to the study of natural phenomena through laboratory experiments and mathematical modelling and can be combined with qualitative methods when employing survey techniques in social settings, such as is used in this instance (Myers, 1997 in Biggam, 2008). As Biggam (2008) points out, it is unlikely that research will limit itself to collecting purely quantitative or qualitative data, and through the use of both surveys and interviews it was expected that both types would be analysed as part of this research.

The research strategy utilised was a survey based approach. This was deemed to be the most suitable option as the research focuses on subjective perspectives and opinions of a particular group, rather than data which may be gleaned from observational or case study approaches. The experiences of previous researchers have been noted and semi-structured interviews combined with surveys were deemed to be the ideal methods for this topic. It was noted by Bellamy (et al, 2005) that while systematic observation may be an ideal method of collecting data in some cases, the impossibility of attaining informed consent for all participants and therefore of gaining ethical approval, make them unviable. Semi-structured interviews allow an understanding of human perspectives that can only be gained through discourse and were therefore considered ideal for this research

A triangulated approach was then undertaken to compare the results of the literature review with the empirical data collected from interviews and surveys.

3.2 Literature Review/Search Strategy

A literature review was conducted prior to the collection of data from other methods, in order to gain a thorough understanding of the state of debate surrounding ethics in the profession, as well as what material detailing the implementation of new technology in libraries. This comprehensive exploration of the previously published highlighted the strengths and weaknesses of existing studies and informed the questions developed for surveys and interviews.

The goal of an effective literature review should be to avoid dependence on one research study that may contradict the findings of other studies (Dunst, Trivette and Cutspec, 2002). More specifically, a narrative literature review, such as that presented in the previous chapter, aims to critically appraise and summarise the literature (Hemingway and Brereton, 2009), while drawing together major

arguments, and should be grounded in the rationale for selecting the topic (Baum and McMurray-Schwarz, 2007).

Readers value transparency and reproducibility (Collins & Fauser, 2005) and a clear search strategy is therefore essential. Multiple subject databases were utilised to find sources, such as: Library and Information Science Abstracts (LISA), Emerald, Credo Reference and Science Direct. LISA was found to be particularly valuable for linking to useful journal articles as the advanced search option allows for simple filtering. Credo Reference was used primarily for defining search terms and ensuring they were used in a manner appropriate to the subject.

The subjects of ethics and technology are both extremely broad topics discussed in literature belonging to a multitude of disciplines. Therefore, a number of additional search terms were tested to find the most relevant material such as, 'libraries, 'information professionals' and 'technology in libraries'. Searching within accredited journals in the field of ILS was also useful. A number of key texts related in particular to ethics in librarianship were found to be effective for both forward and backward chaining, i.e. where references to other texts by a particular source were followed or, more rarely, where a key text is referenced in other articles. This method was found to be particularly effective as it increased the likelihood that the material would be more focused, specialised and clearly relevant to the research questions, as well as the potential for good quality material.

As Rhoades (2011) states the search process should involve "a combination of many search tactics" including "accessing the many electronic literature databases, investigating reference lists, and scanning the Internet via multiple search engines". Additional searches of Google Scholar also produced some good results, though narrowing results was more difficult and the number of relevant, good quality articles significantly decreased. Search engines such as Dogpile were used effectively to find more informal sources such as blogs run by librarians, open source presentation slides and YouTube videos detailing some of the new technologies being brought into libraries and what librarians should be looking for in future. This gave a useful insight into staff perspectives of new technology and a wider understanding of the state of play regarding technology at the moment, even though most of these sources were not directly quoted within this research.

These various methods resulted in a collection of material in multiple formats, from multiple disciplines and with a number of different specific interests, which gave a broad view of the discussions taking place in the literature and the profession of librarianship and which were relevant to the research questions specified in this paper.

3.3 Surveys

Due to time constraints, an in-depth survey of library users was deemed unfeasible and would be better explored in further research. However, it was felt that a survey of a small, representative group of ILS postgraduate students would be beneficial as the participants represent a unique viewpoint - they come from a variety of backgrounds with varying levels of experience, and are particularly concerned with the policy issues they will be expected to tackle when entering the profession. Additionally, these participants' opinions are not influenced by any organisational biases or responsibilities, which it was hoped would provide some interesting insights. There are a number of limitations to this approach, namely that students in this field have a greater awareness of the

background of librarianship and its codes and policies. They may also be more inclined to consider these issues than the average user. Further study into perspectives of a wider cross-section of users is recommended for future research.

The aim of the surveys was to collect both qualitative and quantitative data – what technology users are familiar with or expect to see in libraries, as well as what opinions or level of awareness of the ethics of technology exists amongst users. It was also hoped that the results of the surveys would highlight some key themes which would then inform the interview questions, allowing them to be further explored amongst practicing professionals.

3.3.1 Survey design

The survey was designed using an online survey tool in order to facilitate ease of collection and analysis of data and allow maximum access for respondents. An email invitation was sent using the group email for ILS students, giving a brief description of the purpose of the survey and including a URL link to the Survey. Participants were assured that all data would remain anonymous; they were not obligated to answer all of the questions; and were invited to contact the researcher with any questions they may have in order to comply with research ethics. Please refer to Appendix – for a copy of the survey questions.

The first three questions (Age/Gender/Nationality) were included to collect demographical information for background purposes. Questions six-nine asked participants to indicate what technology they expected to see in libraries and which ones they had used, with a predetermined list created based on the technologies most frequently discussed in the literature. In addition, some emerging technologies which were frequently mentioned by librarians were included, such as mobile apps and QR codes. An 'other' option was also offered, so that participants could offer their own suggestions – it was felt there was potential here to gain insight into what users thought of as 'technology'. These questions sought to establish what technology users associated with libraries and how familiar they were with them, so that some understanding of how big a part technology plays for users of libraries could be gained.

Questions ten and eleven related to the potential ethical challenges raised by the previously listed technologies and were intended to ease participants into thinking about ethics in relation technology and establish whether they had any experience with such matters. The response to these questions was considered important as it provides an indication of the level of awareness of such challenges amongst users, which was a major factor of this research. If the majority of users indicated that they had little understanding of such ethical challenges, this would affect the remaining questions in the survey and also beg the question of whether users are particularly concerned with such considerations. If it was discovered that users had no understanding of ethical challenges, and therefore felt them to be unimportant, how valuable are they to the profession?

The next three questions – twelve to fifteen– hoped to gain a greater awareness of users' understanding of library operations. While it was expected that students of librarianship would know of the existence of ethical codes, it was felt that the question should be included for future reference and in the event that some were not aware despite their increased familiarity with the profession. Establishing the level of such awareness in a survey of a wider group of users would potentially be more beneficial to future research.

The final four questions - among them asking participants to indicate how strongly they agreed with statements regarding the importance of ethical considerations to the profession - again hoped to gauge the perceived importance of ethics in the group and whether it was felt that a judgement of unethical conduct would justify not having access to a particular technology. The issues of service versus access and the tendency of modern library users to appreciate convenience over all else have been discussed regularly in the literature and it was therefore felt that this question may contribute to such debate. Furthermore, asking whether users would appreciate more information on ethics in librarianship was similarly intended to elicit opinions on the importance of ethics in this particular field. As previously stated, if the majority of responses indicated that ethics were not felt to be important by library users, it would present a challenge for the profession.

3.4 Interviews

Interview questions were devised based on the findings of the literature review and key themes which emerged from analysis of survey data. For example, one of the key findings of the literature review was that there was little evidence of what role policy played in the planning process when implementing new technologies and interviews provided an opportunity to assess the significance of ethical discussions on an operational level.

The intent was to map the technology librarians are familiar with in different sectors and how these are generally being introduced; find out whether policy is being consulted to guide this implementation and whether there are any ethical considerations in play as part of the planning process and; explore whether libraries in different sectors and within differing organisations have different levels of involvement or feel that such judgements are not their responsibility.

3.4.1 Participant selection

An email invitation was sent briefly describing the nature of the project to two contacts gained through study at academic libraries and two through volunteer experience in public libraries. Various health librarians were contacted via email lists which the researcher became familiar with during work experience. In addition, one email was sent to a librarian at a high school and one to a health library known to the researcher.

All those contacted were within the researcher's geographical scope and all respondents were therefore based in Scotland, with the majority in Glasgow. The target audience was limited to Glasgow for logistic and financial reasons, as budgetary and time constraints limited the distances which the researcher was able to travel. Future research would seek to explore these issues on a larger scale, such as broadening the scope to the rest of the UK at least, although it would also be interesting to explore attitudes to this topic in other countries as it has been previously noted that opinions may vary based on cultural differences. Moreover, while librarians from a broad range of library types typical to an urban area have been interviewed, these cannot be expected to accurately represent the state of the profession in all similar institutions and more thorough investigation of the themes presented here in other contexts would be beneficial.

The relatively small sample size used for this project, and the geographical limitations noted above, means that the interview data is indicative rather than conducive to broad generalisation about the profession. As all participants worked within traveling distance, it was possible to conduct one hour long face-to-face interviews in all cases in a place of the participant's choosing. This was felt to

increase the validity of the results, as it provided more opportunity to check and confirm responses with participants, in contrast to the one way communication which would have resulted from broad surveys.

As the topic of ethics is a broad one and new technology is affecting all areas of the library profession, it was felt that it would be beneficial if librarians from as many different sectors as possible could be interviewed. The goal was to obtain 6-8 interviews with librarians from a number of different sectors, as it was recognised that the kinds of technology and manner of implementation may vary depending on the institution. As previously mentioned, it was also felt that this would contribute to speculation regarding the moral obligations which librarians must adhere to and how these affect operations and ethical considerations. Such considerations were carefully factored into this research in order to avoid a bias towards any particular sector and so that any findings and recommendations could be of use to a greater proportion of the profession.

3.4.2 Ethics approval

In line with the requirements of the Ethics Committee participants were advised prior to the interviews that all data would be anonymised and that they were not obligated to answer all the questions. They were also asked to sign a consent form stating that they understood what was being asked of them and that the interview would be recorded. Additionally, they were advised how data would be stored and destroyed, and given the interviewer's contact details in the event that they wished to ask any further questions and so that they could be contacted with the results of the research.

3.4.3 Interview structure

A semi-structured interview format was selected as it avoids "pigeon-holing" responses from interviewees as the more flexible nature of this form of interviewing can "provide insights into how research participants view the world" (Bryman, 2012). This was felt to be important to this research as the aim is to gain an impression of opinions and perspectives specific to different kinds of library staff working in a number of different environments, as well as collecting more factual data relating to their experiences. Much of this is highly subjective and the researcher wished to give participants freedom to express themselves.

Ethical challenges will vary depending on the environment, not only because of the different issues inherent in each, but because librarians often work within a wider organisation and, as mentioned previously, have numerous moral responsibilities. This is relevant to this research as it hoped to explore whether librarians are dealing with ethical codes and planning or if that is felt to be someone else's responsibility (i.e. the school board, council, hospital, etc.) and whether they feel this way of operating suitably addresses ethical issues in relation to technology, or whether other barriers, such as budgetary constraints, are given greater consideration

While completely unstructured interviews provide similar flexibility, they can result in lengthy discussions and, given the broad nature of this particular topic, it was felt that more guidance and direction to the questioning would lead to more relevant and valuable data. There is therefore room for interviewees to expand on areas of particular interest to them but with the structure necessary to keep the discussion within scope and within the allocated time agreed upon with participants.

This style of interviewing is typical of qualitative research. Unlike in quantitative research the interviewer does not "slavishly follow a schedule", allowing for discussion and some divergence as occurs naturally, although a "script" is utilised to an extent so that the discussion does not stray too far off topic (Bryman, 2012). In this instance it was determined that utilising such a script would not adversely affect the way interviewees expressed their views and was deemed suitable.

It was also expected that a certain amount of flexibility must exist with the interview process and the questions themselves. They were expected to develop with each session and it was recognised that changes may need to be made to wording and structure depending on the experience of each particular participant and lessons learned from their responses.

Probing and follow-up questions were developed as necessary, being careful to remain non-judgemental while trying to draw more information from participants and "amplify" responses "with some more specific detail" – these can be defined as "specifying questions" (Bryman, 2012). 'Interpreting questions' were also important as they ensured the interviewer's understanding of what is being said is correct. Listening, being attentive and engaging with what the interviewee was saying was found to be paramount and improved as the interviews progressed. Additionally, the need for tact and empathy were fully recognised as there can be a danger of sounding judgemental or accusatory. These observations were noted as one of the desired learning outcomes of this research was to provide the researcher with experience in interviewing, correctly understanding responses and effectively prompting participants.

While the interviews were originally intended to be individual, face-to-face interviews, and this was a natural occurrence as many of the respondents worked in highly specific roles, an opportunity also arose to conduct a group interview. Two members of staff within an academic library had been involved in implementing a variety of technology and projects and this research was therefore of interest to them. It was felt that this would lend variety to the research methods and that it would be interesting to see how the data collected differed from the individual interviews. It was also hoped that by facilitating group discussion a more natural and comfortable level of engagement could be easily reached, allowing for fresh insights and more viewpoints to be collected. Additionally, how those viewpoints and opinions were affected by having another colleague present could be of note.

Interviews were recorded by Dictaphone and transcribed as soon as possible after their completion in order to ensure valuable data was accurately recorded. Participants were asked to give their consent for the recording prior to the session and advised that the data would be transcribed and stored in Word format, all of which was satisfactory to all participants. Interviewees were then sent a follow up email containing a summary of the key responses to the interview questions and asked to confirm that the interviewer's interpretation was acceptable. This was felt to be especially important in cases where the recording was somewhat unclear and respondents were advised accordingly in these cases.

3.4.4 Interview Questions

The questions used in the interviews are provided in Appendix --. It should be noted that, due to the semi-structured style of interviewing employed, these questions were used as more of a guide for directing the conversation and collecting essential data. The wording of the questions changed slightly depending on the situation and the interviewer took care to be flexible and adapt to the

discussion as it naturally progressed in the hopes of prompting further useful comments which had not previously been encountered and to allow exploration of emerging themes.

The first two interview questions were designed to establish the participant's background and experience; what kind of libraries they had worked in in order to provide context for their responses. Question three sought to establish the level of awareness or understanding of 'technology' in that context and what experience they had with it. There can be definitional issues with the term 'technology' which needed to be addressed at the outset to ensure the collection of relevant data. As previously stated, 'technology' in the context of this research refers to those information technologies which have affected libraries in a multi-layered fashion, i.e. which have to be considered from the business, data, application and technological viewpoints of an enterprise architecture framework. More specifically, 'new technologies' were described as those technologies which are more advanced or automated than those previously in place. It was expected that some discussion would be prompted to start the interviewee thinking about the variety of new technology and their exposure to it. Question four similarly sought to encourage discussion about potential technologies on the horizon for libraries.

The next question aimed to establish whether participants had been involved in the implementation process of new technologies and, if so, to what extent. This was important as it established their familiarity with operational, versus policy, versus system considerations depending on their job role, specialised skills and experience. It allowed for the possibility that no such experience had been gained by asking what they would expect to take place and were followed by probing or specifying questions where necessary.

Following up to this, the remaining questions were designed to relate these experiences specifically to ethical considerations. As with the first question, question six was intended to establish levels of awareness and familiarity with the topic of ethics and address any definitional issues. It also hoped to gather an impression of how important participants viewed such ethical issues, i.e. whether they considered them an intrinsic part of a librarian's day-to-day work or something which rarely causes enough concern to be explicitly discussed.

With question seven, helpful data regarding whether ethical codes are consulted during the planning process and the extent to which these are formally considered was expected to be collected. As the literature review found such things were not often indicated, the goal was to establish whether it is common practice, but simply not formalised or often talked about in the literature, or whether it is not actually being done. Anecdotal evidence regarding the planning and implementation process and the use of ethical codes or the existence of sanctions was therefore collected in the hopes of gaining further insight into the profession.

Question eight related to the notion of responsibility and the extent to which participants from different backgrounds would assign that responsibility to librarians. Furthermore, the notion of duties to a wider organisation could be explored at this stage, as well as the level of personal responsibility they feel, or whether these issues are seen to be given too little or too much attention. Study of the literature indicated a somewhat lackadaisical attitude to ethics – as they exist more like vague guidelines than actual rules – and the possible opinion that it is not the responsibility of the librarian. The researcher therefore hoped to discover whether this is an accurate representation of professional attitudes or whether there may be a lack of awareness and education.

The final question asks whether clearer ethical guidelines would be beneficial to the profession. Analysis of the literature suggested that strict guidelines may not be the most beneficial solution and this question therefore provides the opportunity for those working in various library sectors to express their opinion and to suggest other alternatives. Again, the question of responsibility is also relevant here, as the researcher hoped to explore who participants believed should be taking steps to provide such guidelines and who should be trusted to do so.

3.5 Data Analysis

3.5.1 Quantitative analysis of survey data

Due to the small, manageable size of the survey sample the researcher was able to conduct basic quantitative analysis using the reporting features of the Qualtrics software which was used to design the survey. This effectively provided graph and table features which allowed participant responses to be easily viewed and helped to highlight any patterns present. Comparisons with demographical information were possible, although generally it was found that there was not enough variety in the data to properly extrapolate on such comparisons.

As the surveys were conducted within a closed group of neo-professionals in the ILS course at the University of Strathclyde, many of the questions provided expected responses and were used to draw out potential issues which could then be further explored in interviews.

3.5.2 Interview data

The responses to interview questions were viewed holistically so that, for each session, meaningful interpretations could be gained from looking at the responses given as a whole. Conceptual themes were developed in response to interviewees' answers, rather than being pre-determined. This approach has been deemed advantageous as it avoids making assumptions about participants and is not influenced by the interviewer's preconceived notions (Herring, 2012). Additionally, although some assumptions necessarily must be made to form the interview questions - for instance in this case that librarians will be familiar to some extent with forms of technology and ethical discussions - this approach allows room for discussion to develop and to move away from those assumptions if necessary, with the potential for previously unanticipated themes to emerge.

Biggam (2008) found that many studies have emphasised that the process of data analysis must be "non-linear, involving repetition and reflection". The data collected from interviews was expected to be more complex than that taken from surveys and as such was analysed using an iterative process whereby themes were identified and coded via multiple cycles of content analysis. Mostyn (1985, in Herring, 2012) describes the aim of this approach to be to convert the raw natural language of the transcribed material into "scientific data" by objectively identifying the main characteristics within the responses by using key words and developing comparable themes.

3.5.2.1 Transcription of recorded interviews

Interviews were recorded, with the permission of participants, and transcribed as soon as possible after completion. This allowed the transcription process to be spread out over a longer period of time and avoid work build-up. This also aided with the process of 'constant comparison' as advocated by Glaser and Strauss (1967 in Bryman, 2004). The majority of the material from interviews was considered highly relevant, so there was little need for the removal of irrelevant sections of speech. However, in some cases the recording was found to be somewhat unclear. For

the purposes of transparency and to ensure the accuracy of the transcriptions, the key points of the responses were summarised and sent by email to all interviewees asking that they confirm their agreement with the researcher's interpretation. These summarised versions of the transcriptions were used during the analysis stage to more effectively identify key issues and themes that would be incorporated into coding.

3.5.2.2 Coding

Interview transcripts were coded using a grounded theory approach in that the main themes were extrapolated from the findings of the literature review and survey data collected previously rather than "preconceived standardised codes" (Bryman, 2004). Further themes were then ascertained through the iterative process of close reading the interview responses, with each reading informing the next stage of coding.

An open coding method was utilised initially, so that the qualitative data could be "examined, conceptualised and categorised" (Smith, 2010). Once this stage was completed, a more selective method was applied to extract the main themes based on the most common codes found within all interview data. Some broad categories were identified, such as 'ethics', within which sub-themes could exist such as 'internal or external decision making' and 'codes and guidelines'. These were also often found to link with aspects of other broad themes.

The next chapter will go on to analyse the results gained from the research methods described here and present the most significant findings encountered.

Chapter 4: Analysis and Findings

This chapter will detail the analysis of the data collected via the methods described in Chapter 3, beginning with the results of the survey disseminated to ILS students in the first section. The second section will similarly present the data collated from interviews. Both will attempt to draw indicative findings from the data and present those findings and data in a form that can be easily interpreted by the reader. Any issues encountered or lessons learned from analysis that may assist in the future creation of research devices will be noted where appropriate.

4.1 Survey Data

The survey was disseminated to twenty six students and received fourteen usable responses. The survey was intended to help identify issues which could be further explored in interviews, as students in the subject of ILS were expected to have a high level of exposure to emerging and hypothetical issues in the profession. This allowed the researcher to be confident that a wide range of themes were present before exploring them in an operational context. Additionally, creating and disseminating the survey was intended to fulfil a learning outcome by providing the researcher with experience in designing and utilising a range of research devices. With a sample of this small size, it must be noted that all findings are purely indicative and that broader investigation of the questions presented here to a larger and more varied user group would be recommended to produce more generalised findings.

4.1.1 Participant age range, gender and country of birth

The first three questions of the survey requested simple demographic information from participants, in hopes that it would present interesting results. None of the questions were obligatory, giving participants the option to leave them blank if they wished to, and the data is therefore partially incomplete.

Figure 1 shows the year of birth of all respondents. It may be possible to conclude that responses are indicative of this particular age range which consists largely of a generation which has experienced the rapid progression of technology, but are not generally considered 'digital natives'. While exploration into other age groups were outside the scope of this research, it would be interesting to compare opinions regarding technology given to those held by users with different levels of exposure, as well as whether age has an effect on perceptions of ethics.

Figure 2 shows that the majority (64.29%) of respondents were female and Figure 3 indicates respondents' country of birth. This question was included in order to explore whether opinions varied depending on nationality as it has been shown that different cultures can have varying opinions regarding ethics, as elucidated by their differing professional ethical codes. However, as was somewhat expected, the majority of responses listed the country of birth as Scotland. With so little variation in country of birth it is not possible with a sample of this size to confidently conclude that nationality has any bearing on the responses given. Additionally, it was known to the researcher that many of the respondents, regardless of original country of birth, had resided in Scotland for a number of years and it is not possible to know, without a more in-depth study, to what extent this influenced their answers.
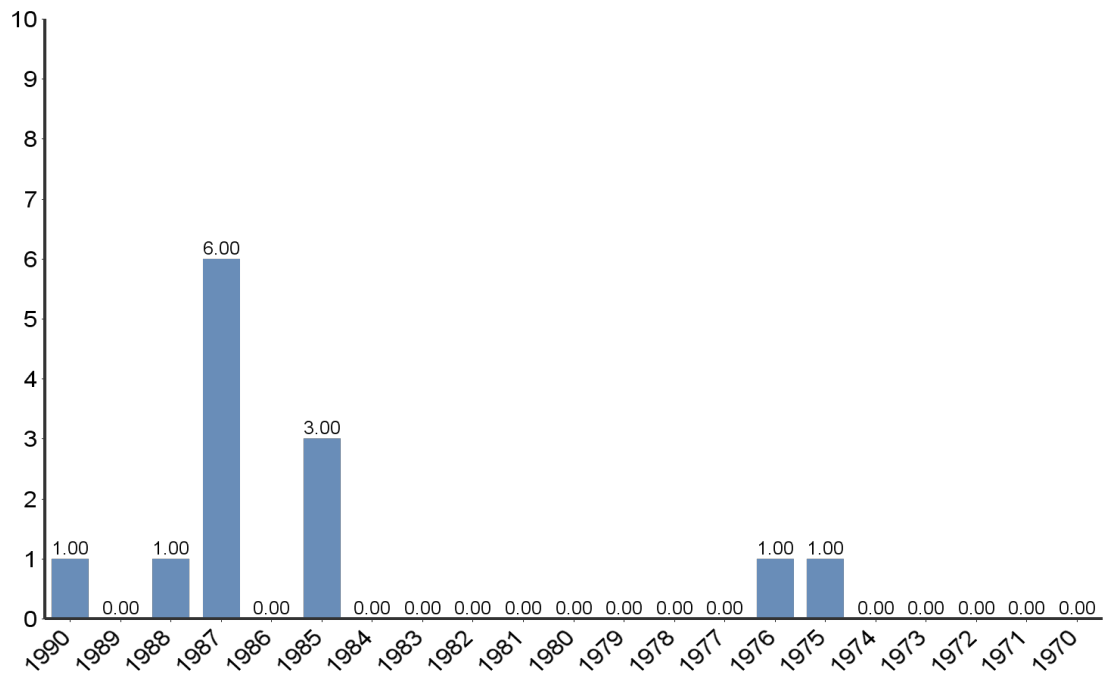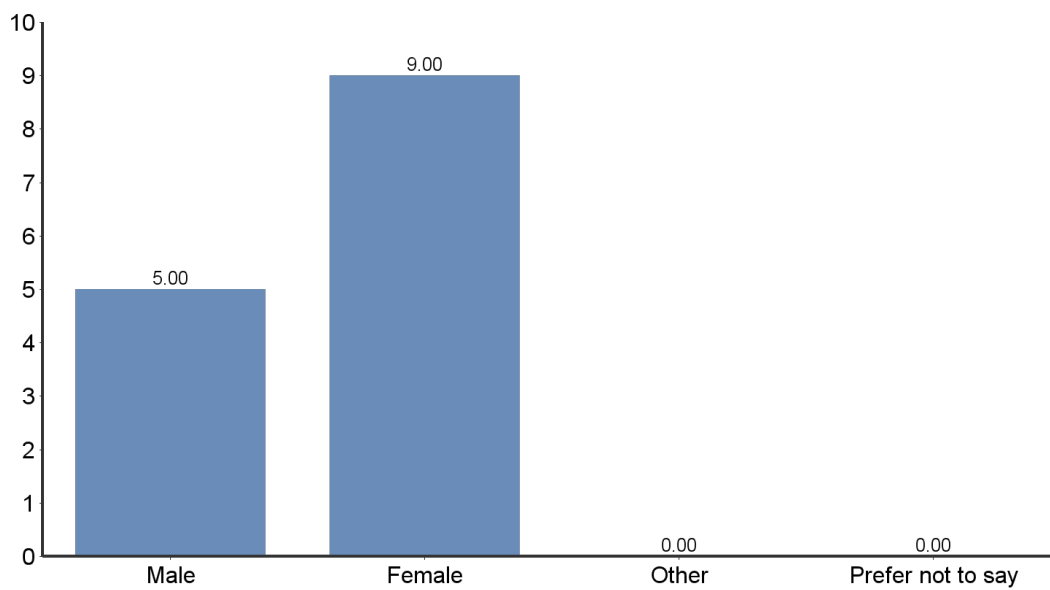
Figure 1: What year were you born?

Figure 2: What is your gender?

Answer	Responses	%
Scotland	10	83.33%
United States of America	1	8.33%
New Zealand	1	8.33%

Figure 3: What is your country of birth?

Figures 4 and 5 show the results of questions 6-9 wherein participants were given a list of technologies based on those commonly encountered in the literature in relation to libraries. This list was by no means intended to be comprehensive, but merely to provide a sample of common technologies and suggestions for participants to base their answers on. An 'other' option was included with a follow up question to allow for suggestions and further detail, although no other technologies aside from those already listed were suggested by respondents.

The first table shows that all fourteen respondents would expect to find Internet access, photocopiers and printers in most libraries, although only thirteen (92.86%) said they would expect to find computer terminals. Similarly only thirteen (92.86%) expected to find Wi-Fi and OPACs, which was somewhat surprising to the researcher as these were expected to be something of a given in all libraries, although a follow up comment from the respondent indicates that their answers were based on the technology they "would expect to find in a small lib[rary]. In bigger lib[raries] I would expect more of the above (especially Wi-Fi, self-service machines, e-readers)". It is interesting that a distinction was made here based on the size of the library and it was recognised at the exploratory level of the survey that there may be inconsistencies across the profession in what is present depending on budgetary constraints, user needs, physical location, and so on. This was noted as a potential issue which could be further investigated during interviews, as conclusions cannot be fully inferred from neo-professionals. As the question did not specify the kind of library, but focused on expectations of libraries as a whole, it would be interesting to note if opinions differed between public, academic or smaller, more specialised libraries.

CCTV was expected by ten respondents (71.43%). In the follow up question, one respondent noted that they would "find CCTV to be a reason to no longer go to a library". It is assumed that this refers largely to public libraries, although the researcher cannot be sure due to the broadness of the question, and it would again be interesting to find out whether this opinion differs in regards to a health library which is open after hours, for example. This result still shows that the majority of respondents do expect CCTV to be a part of the average library and are perhaps resigned to its presence, whether or not they agree with it.

Half of the respondents said they expected to find mobile apps in libraries (50%) and less than half expect to find RFID tags (42.86%), QR codes (42.86%), TVs (42.86%), digital signage (35.71%) or e-readers (28.57%). While use of RFID tags has perhaps been gaining more publicity - or students of this particular subject at the University of Strathclyde may simply be more aware of them due to the university library's current project for implementing RFIDs which began this year - it is interesting that they and QR codes were listed more frequently than potentially 'simpler' technology such as TVs or digital signs. It may indicate that RFIDs are considered more necessary for security concerns, whereas others may be harder to justify in light of financial constraints if they are considered more aesthetic or something of a luxury.

Participants were also asked what technology they themselves had used, though whether or not they had used them in libraries was not specified. This was intended to gain an indication of respondents' familiarity with the technologies in everyday life and whether this differed from their expectations of what is generally present in libraries. However, this may need to be more clearly stated in future surveys as there was a suggestion that respondents assumed the question only

applied to using the technology in a library. It should also be noted that it was not specified what qualified as 'use', for example, observing the time or viewing an advert displayed on a TV screen in a library may constitute using the technology. For future reference, asking participants whether they are familiar with the list of technologies or something similar may produce clearer results.

All respondents stated that they had used computer terminals, internet access and OPACs. It might be expected that users outside of a class studying librarianship may be less familiar with OPACs. Thirteen responses (92.86%) indicated familiarity with Wi-Fi, self-service machines and printers. The use of self-service machines in particular is quite interesting, considering only eleven respondents stated that they would expect to find such a service in a library. Again, previous responses may have been based on expectations of public libraries, rather than the academic library students are no doubt more familiar with. Mobile apps were found to be more commonly used than social media - this was surprising and again may be something that would differ depending on the age group.

Less than half of the participants stated that they had used e-readers (21.43%) or QR codes (14.29%). The low rate of e-reader use may not be indicative of the rate of e-book use, as users may have their own devices, although this suggests the libraries users are familiar with do not tend to lend e-readers. The low rate of QR code use is somewhat expected as they have yet to become truly prevalent in public libraries, though they do exist more commonly in academic libraries.
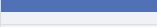
Answer	Scale	Responses	%
photocopier		14	100.00%
printer		14	100.00%
Internet access		14	100.00%
computer terminals		13	92.86%
Wi-Fi		13	92.86%
OPACs		13	92.86%
self-service machines		11	78.57%
social media sites		11	78.57%
CCTV		10	71.43%
cookies		10	71.43%
mobile apps		7	50.00%
QR codes		6	42.86%
RFID tags		6	42.86%
TVs		6	42.86%
digital signage		5	35.71%
e-readers		4	28.57%
other		1	7.14%
Total		158	100.00%

Figure 4: What technology do you expect to encounter in a library?

Answer	Scale	Responses	%
computer terminals		14	100.00%
OPACs		14	100.00%
Internet access		14	100.00%
printer		13	92.86%
self-service machines		13	92.86%
Wi-Fi		13	92.86%
photocopier		10	71.43%
mobile apps		10	71.43%
social media sites		8	57.14%
digital signage		5	35.71%
e-readers		3	21.43%
QR codes		2	14.29%
TVs		1	7.14%
other		0	0.00%
Total		120	100.00%

Figure 5: Which of these technologies have you used?

4.1.3 Ranking of technologies

In question ten, participants were asked to rank the sixteen technologies that had been previously listed in order of which they thought would pose the most ethical problems, with the 1 being the top rank. The table shown below in Figure 6 presents the responses organised in order of those ranked as being the most likely to present ethical problems by the highest number of.

Perhaps unsurprisingly, the technology ranked as presenting the most ethical problems by the highest number of respondents was Internet access. The lowest ranking it received by one participant was 7 out of 16. This indicates a high level of consensus amongst the responses. The second most highly ranked technology was computer terminals, followed by Wi-Fi. These three seem to be intrinsically linked together, though it is interesting that computer terminals alone still rank very highly and it could be speculated that this is based mostly on there being a conduit for the Internet.

RFID tags were ranked fourth most likely to present problems. It is interesting that self-service machines were ranked relatively low, and were also listed by participants as one of the most commonly used technologies in the previous question, showing that the current self-issue technology, such as barcodes, do not present as great a threat as RFIDs may.

The fifth ranked technology was CCTV, although with three respondents ranking it at 1 and one ranking as low as 16, it did not come anywhere near the potential of the Internet for ethical problems in the eyes of the respondents and opinions about whether it presents a threat obviously vary considerably. However, it is still interesting that ten respondents ranked CCTV at 7 and above given its prevalence in everyday life and the high expectation of encountering this technology in public spaces, which may also explain the range of responses given.

Social media sites were ranked on average as the seventh most problematic, still in the upper half of the list, though perhaps surprisingly low with one respondent rating them as low as 16. The benefits of using social media in libraries have been greatly expounded upon in many academic journals recently and it could be that the benefits of using this service are deemed to largely outweigh the potential for misuse, although this ranking amongst neo-professionals still shows a healthy level of wariness towards such technology. It would be interesting to explore whether it is ranked lower by the general public.

Photocopiers were ranked next and were assigned a large range of rankings, the highest being 2 and lowest being 15. This may largely be due to legal implications as copyright law must be adhered to in order to avoid litigations, rather than simply being a matter of ethics as the majority of respondents still ranked this in the lower half of potentially problematic technologies. Photocopiers were also ranked more highly than mobile apps, which again may be attributed to legal implications or the fact that mobile technology is still relatively new in libraries and the potential implications have not been fully explored.

Answer	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Mean
Internet access	7	4	2	0	0	0	1	0	0	0	0	0	0	0	0	0	2.00
Wi-Fi	2	3	3	1	2	0	0	1	1	0	0	0	0	1	0	0	4.43
computer terminals	1	2	2	3	4	0	1	0	0	0	0	1	0	0	0	0	4.43
RFID tags	0	1	2	2	2	5	0	0	1	1	0	0	0	0	0	0	5.36
CCTV	3	1	0	2	1	2	1	0	1	0	1	0	0	1	0	1	6.21
cookies	1	2	0	2	1	2	1	0	1	0	0	1	0	0	0	3	7.57
social media sites	0	0	3	2	0	2	1	1	1	0	0	0	0	1	2	1	8.07
self-service machines	0	0	1	0	2	1	2	1	1	1	2	1	1	0	1	0	8.71
photocopier	0	1	1	1	0	0	3	0	1	0	1	1	2	1	2	0	9.43
mobile apps	0	0	0	0	1	1	1	1	3	1	3	1	1	0	1	0	9.71
e-readers	0	0	0	0	1	0	1	3	0	4	1	1	0	1	2	0	10.21
OPACs	0	0	0	1	0	1	0	2	2	1	1	1	0	2	0	3	10.93
QR codes	0	0	0	0	0	0	0	1	2	3	1	5	1	1	0	0	11.00
TVs	0	0	0	0	0	0	1	2	0	0	2	2	2	3	1	1	12.00
digital signage	0	0	0	0	0	0	1	0	0	1	2	0	5	1	3	1	12.79
printer	0	0	0	0	0	0	0	2	0	2	0	0	2	2	2	4	13.14
Total	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	-

Figure 6: Please rank the listed technologies in order of which you think may pose the most ethical problems.

4.1.4 Potential ethical problems

Participants were asked to give examples of potential ethical problems that any or all of these technologies may pose. The high level of response may indicate how emerging professionals in librarianship are trained to consider these issues and it would again be interesting to find how this compares to general users or, indeed, to professionals with a higher level of experience.

The tag cloud in Figure 7 was thought to give an interesting insight into the general themes of the comments given. Discounting words such as 'library' and 'ethical' as being negligible, the clearest words are 'access' and 'users'. Five out of the ten responses noted potential issues with the Internet and expressed an understanding of the problem of balancing a user's right to access material against the potential for accessing inappropriate or illegal material. Five out of ten also mentioned the importance of protecting privacy and sufficient awareness of user rights and the sensitivity of personal data.

One response interestingly stated that they only saw "ethical problems with CCTV and RFIDs, unless you count inaccessibility of some of these technologies towards ethical problems". Again the trend seems to be to place more importance on access than almost any other issue which may indicate a common viewpoint amongst library professionals and may differ from the general public or other stakeholders. One may expect that preventing access to inappropriate material may be more important to a person in local government, whereas librarians may be commonly of the opinion that censorship is less easily justified. Another respondent was able to list potential issue with almost all of the technologies given. Again this range of responses suggests that this particular target group are naturally inclined to consider ethical issues and able to understand their importance, which may not be the case in other groups of users.

Figure 7: Can you give an example of an ethical problem which one or more of these technologies may pose?

4.1.5 Ethical codes and sanctions

The following three graphs shown in Figures 8, 9 and 10 show from participant responses that the majority believe that: the ethical concerns noted in the previous section are considered prior to introducing technologies into libraries; that library professionals have ethical codes which they must adhere to; and that sanctions should be placed on institutions who do not adhere to such codes.

While participants may have completed a term of study in librarianship, there may be varying levels of actual experience in libraries amongst the group, so it will be interesting to find from interviews with practising librarians whether ethical codes are subscribed to by themselves or their employers. It is unsurprising that this group of students are aware of the existence of ethical codes in librarianship and it is expected that this may not be the case in other groups of users. However, it was surprising to the researcher that sanctions were endorsed by the majority of respondents, although one follow up comment which suggested that "sanctions is a bit tough as a term" may indicate that a need for effective policing of policy is what is being expressed here.

When asked who would be most suited to impose such sanctions (see Figure 11), the majority of respondents (64.28%) answered with 'an ethical committee appointed by the profession'. One respondent gave the follow up comment that "local government has no role to play when it comes to an academic library, it's different if it's the local library. CILIP is useless all round." These responses may indicate a similar lack of faith in CILIP as a professional body, but the belief nonetheless that library professionals should be discussing these issues and are best placed to make decisions regarding them. Once more, this is a response that may be expected to vary considerably if other types of users were to be asked.

Figure 12 shows that, when asked whether a new technology should still be introduced into libraries even if it were deemed unethical, the majority (85.71%) answered 'no'. This aligns with the level of awareness of ethical challenges shown by previous responses and is a viewpoint which again will be interesting to compare with interview answers or views of other user groups.
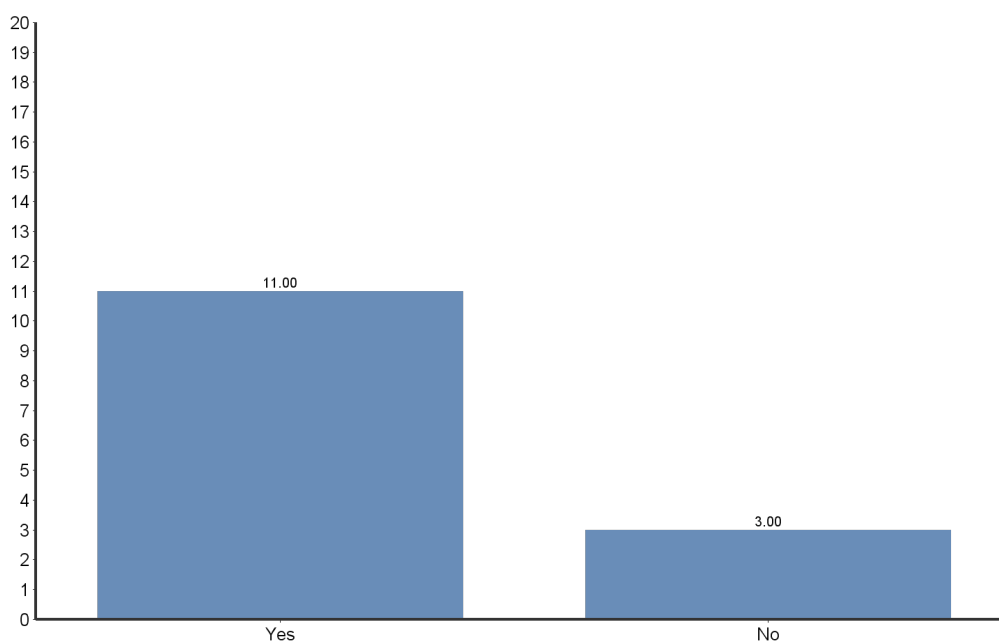
Figure 8: Do you think these ethical challenges are considered prior to implementing these technologies in libraries?
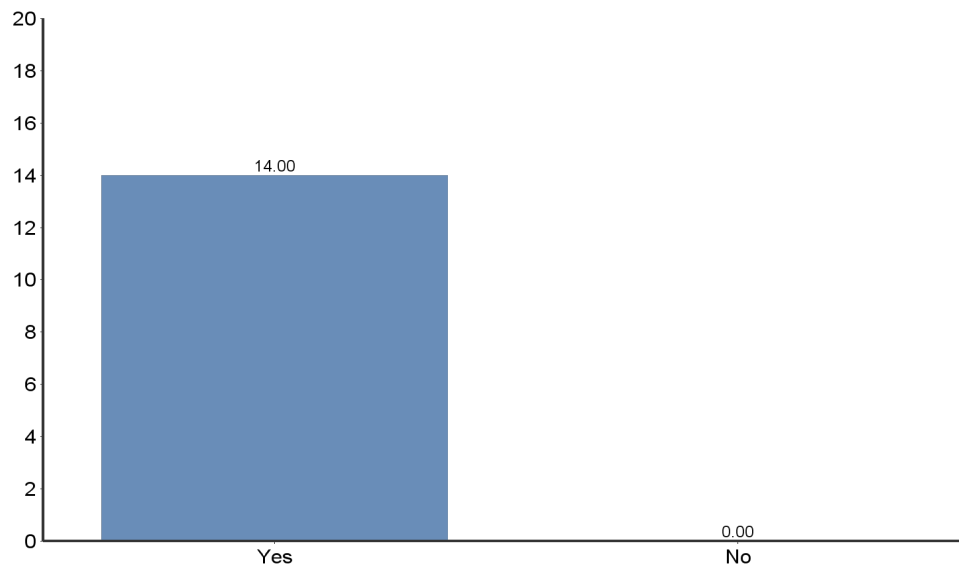
Figure 9: Do you think library professionals have ethical codes which they must
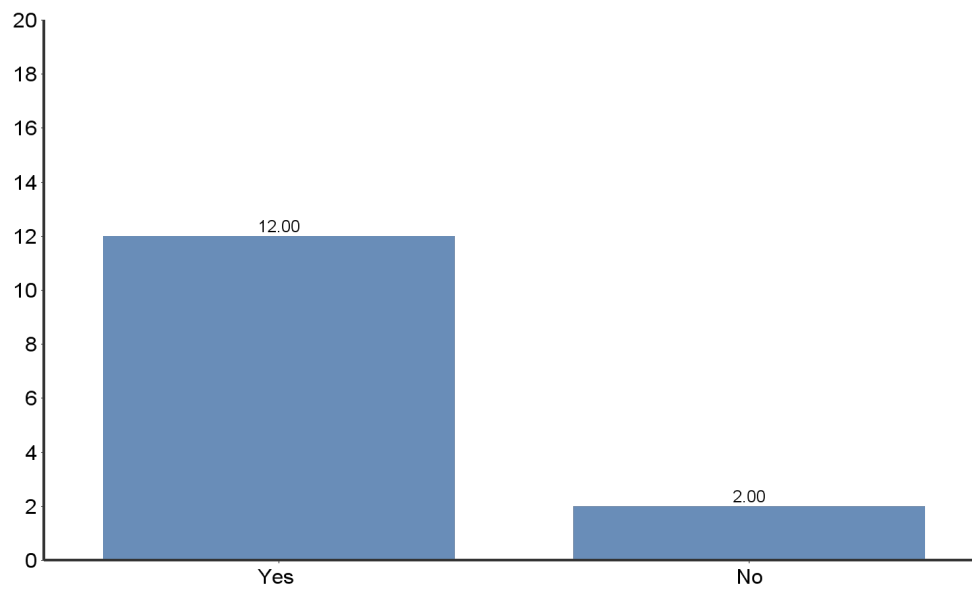
Figure 10: Do you think sanctions should be placed on any institutions that do not adhere to these codes?
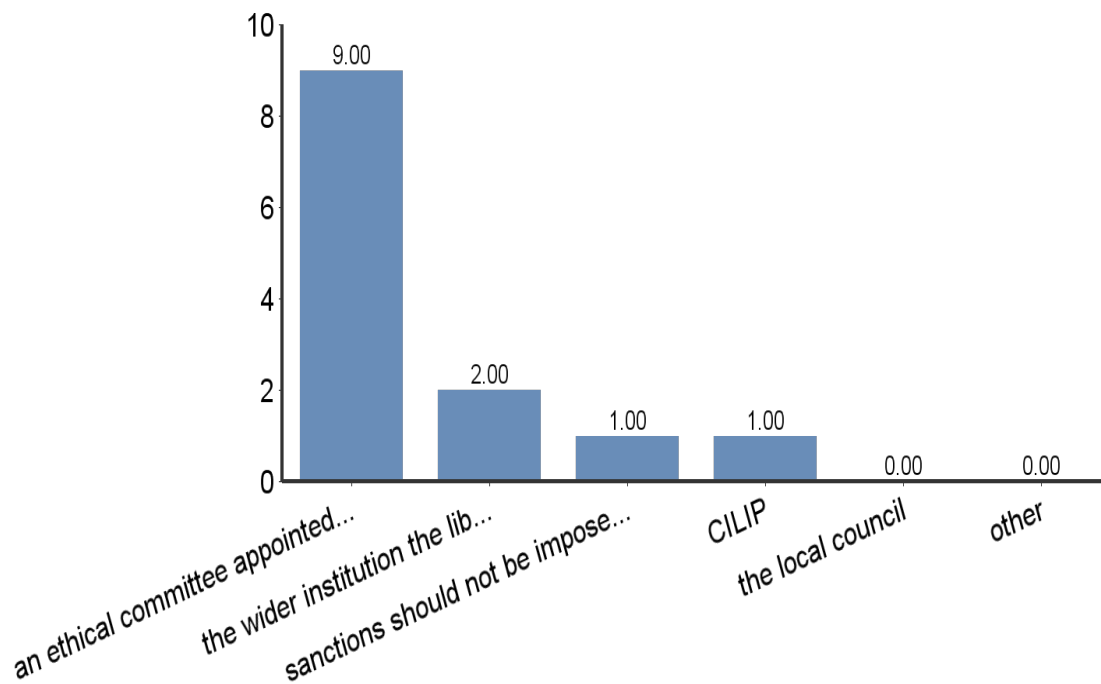
Figure 11: Please indicate who you think would be most suited to implement these sanctions from those listed.
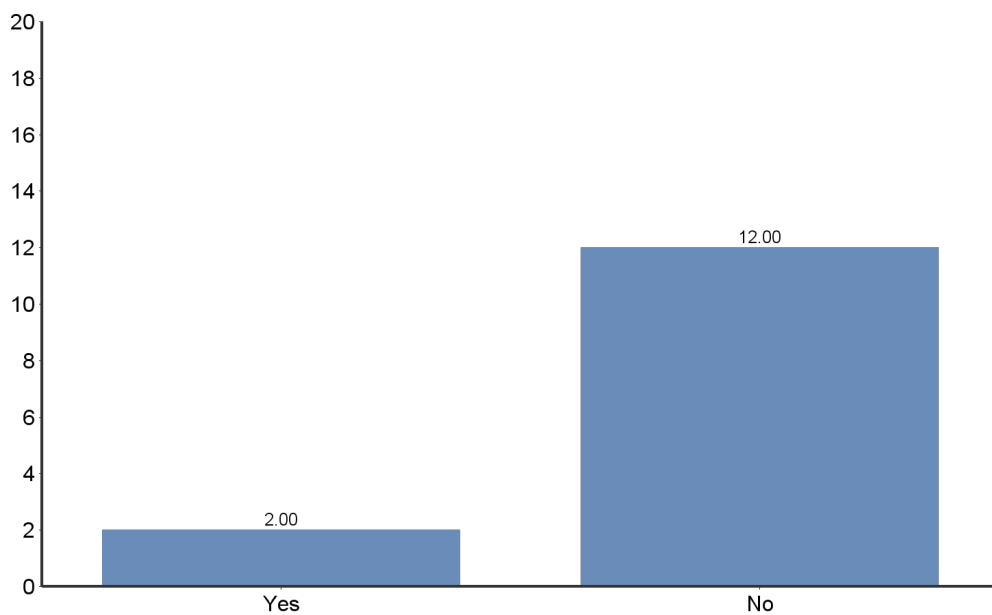
Figure 12: If a potential new technology were deemed to be unethical, do you believe it should still be introduced into libraries?

4.1.6 The role of the librarian

Questions 18 and 19 of the survey presented participants with two statements and asked them to rate their level of agreement from 'strongly disagree' to 'strongly agree'. The graphs in Figures 13 and 14 show the results. Unfortunately, there was no opportunity to ask respondents for further details on the reason for their vote and an additional question to this effect should perhaps be included in future surveys. Given that previous responses suggested a high level of awareness of ethical challenges associated with technology and their relevance to libraries, it is interesting that some respondents seemed to feel that considering such challenges does not fall within the purview of a professional librarian's job, although these are still in the minority.

Combined with previous responses, the results in Figure 14 may suggest that participants feel that while professionals in librarianship may be in a good position to assess some of these issues, placing it within the responsibilities of individual librarians may not be beneficial.

The results of the final question, shown in figure 15, seem to corroborate this as the responses indicate that emerging professionals in librarianship may feel the need for greater discussion regarding technology and the ethics involved in implementing it within the profession and that currently such discussion are not happening enough. The researcher felt that this was a significant finding which would greatly benefit from comparisons with interview results, as well as any future surveys targeting a variety of user groups and stakeholders.

The next section of this chapter will go on to analyse the results of interviews conducted with these findings in mind.
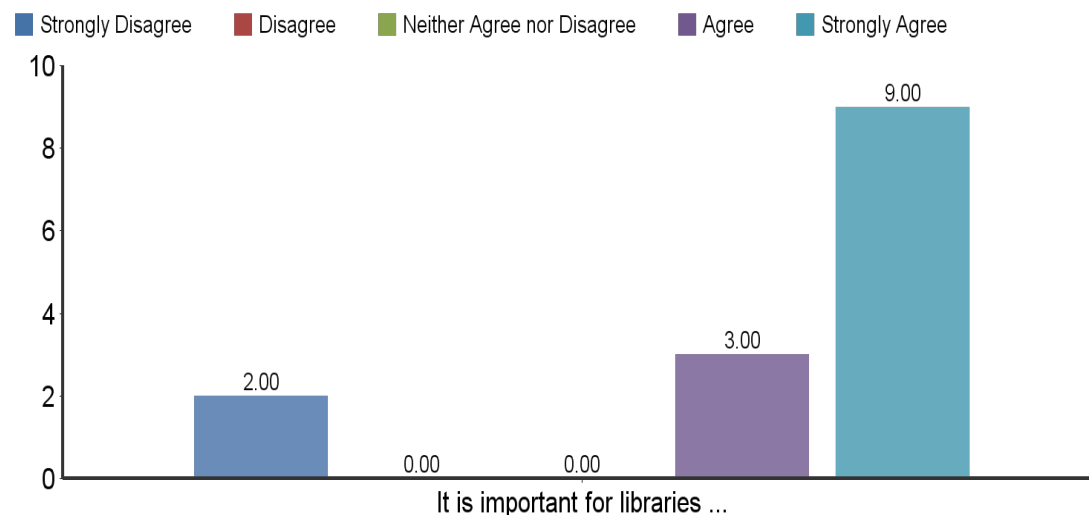
Figure 13: It is important for libraries to consider ethics in relation to technology during the planning process.
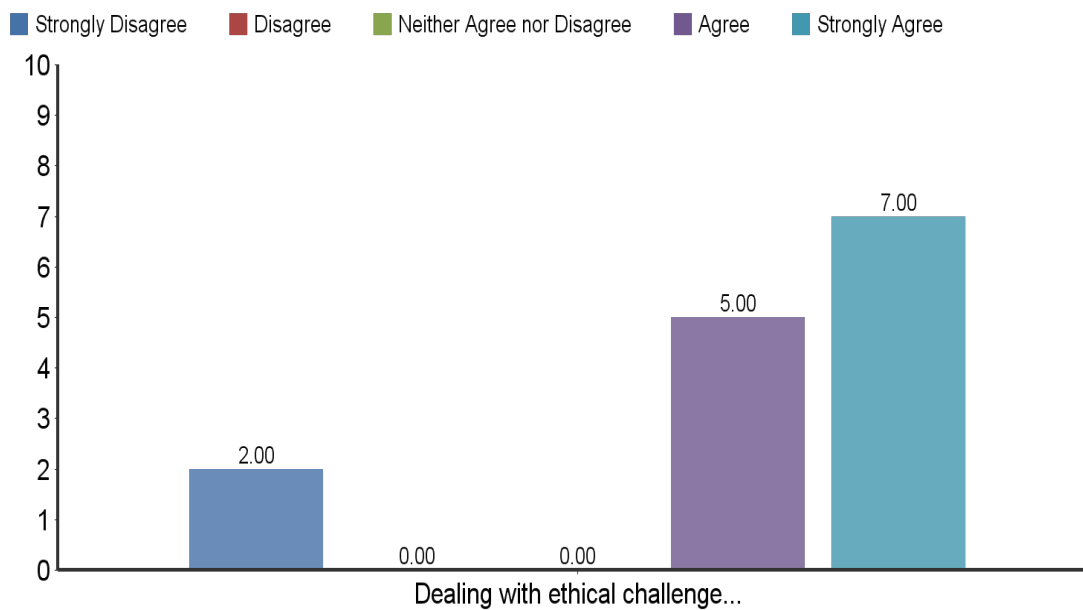
Figure 14: Dealing with ethical challenges is an important part of a librarian's job.
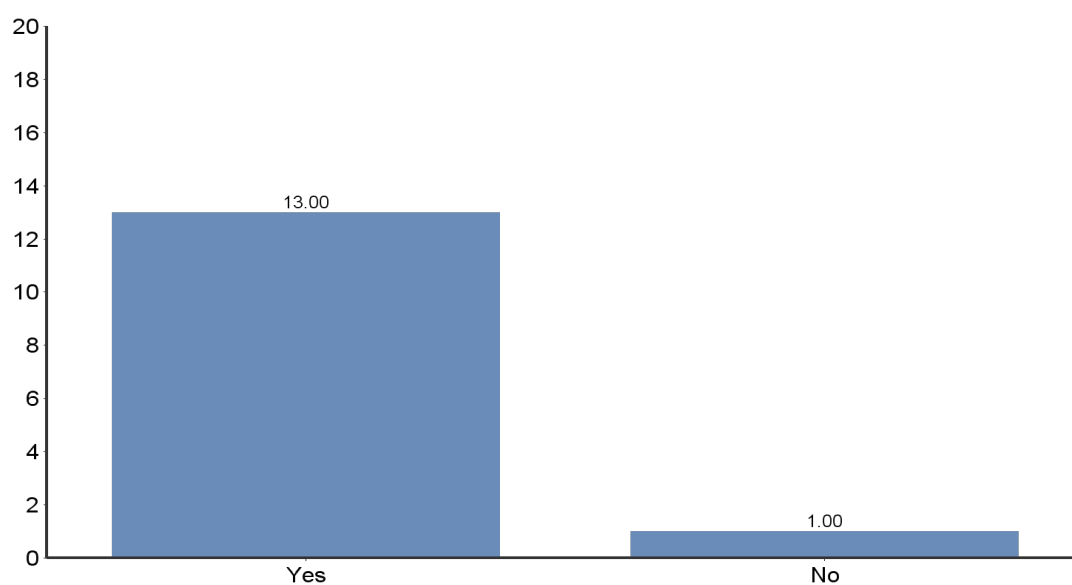
Figure 15: Would you like a professional body within librarianship (such as CILIP) to provide more information about any ethical issues raised in libraries in regards to

4.2 Interview Data

Seven semi-structured interviews were conducted with eight library staff, both senior and frontline. Interviewees from a number of different sectors were involved – three from public libraries; two from an academic library who participated in a joint interview; two who worked in health libraries; and one in a school library. The table below shows the participants and the sector they belonged to (Figure 16).These professionals possessed varying levels of experience and specialised in different areas, as well as having diverse levels of awareness and understanding of the implementation processes involved with technology. This led to the collection of differing opinions and viewpoints about a wide range of topics, as processes could vary significantly between the different sectors.

Nine interview questions were decided prior to these sessions, although these were used as more of a general guide to keep the discussion relevant, and interviews were led to an extent by the particular interests and observations of each participant.

The themes identified here were largely influenced by the findings of the literature review and further adapted based on the results of the survey described in the previous section, revolving broadly around the major themes of ethics and technology which link to the initial research objectives. As analysis of the interview transcripts was conducted, some additional themes naturally came to light and were incorporated into the coding.

This section has been divided based on the seven key issues identified through close reading and analysis of recorded interview transcripts and will address the subthemes within each. These were:

- Ethics
- Codes and guidelines
- Ethical dilemmas or issues
- Technology
- Implementation and planning
- Wider organisations and stakeholders
- The role of libraries.

Interviewees	Academic Library	Public Library	Health Library	School Library
1				S1
2		P1		
3	A1			
4	A2			
5			H1	
6		P2		
7			H2	
8		P3		

Figure 16: Participants and sectors in order interviewed.

4.2.1 Ethics

This section will address the level of awareness of the subject of ethics in general, both individually and amongst other library staff, as expressed by interviewees. This was partly ascertained by asking whether or not they felt ethics were regularly considered or encountered in the day to day work of a librarian.

The majority of participants stated that they felt ethical issues were encountered regularly by librarians. However, the "language of ethical challenges" could be confusing to some, emphasising a lack of formal discussion:

> "…people can baulk a wee bit or not quite understand it… ask a question about what they would do if people were asking for police records or what you've been doing on the internet, or how to handle patrons with visual impairment… they would have an answer, but if you posed the question 'ethical dilemmas' they might not immediately understand."(P2)

> "…it's something I've never really thought about to be honest… you know a feeling of right and wrong and what you should and shouldn't do… never really get to the philosophical level of 'is it ethical to do this?'"(S1)

> "…as a profession we probably don't really [talk about it much]… people should be aware of some of the issues [and] don't actually realise what the technology can do."(A1)

Whether ethical decisions were generally made internally or externally was also explored. Of the seven professionals interviewed, those in frontline positions could not say with any level of certainty that ethics were addressed at all in the wider organisation, although in their own individual conduct they were able to make their own decisions:

> "…decisions are made and you're not always given time to reflect on why the decision has been made or if it's the right decision… at times ethics possibly aren't seen as being as important as they should be… I would like to think ethics would be an important consideration, I think it probably would be, but I can't be sure." (S1)

> "How the council make their policies beyond that at a very high level, I'm not sure if they're even aware that CILIP have [codes] or that they're even aware of CILIP…" (P3)

> "…if I'm making any wee changes here you would think about small things, but I don't think any changes we make here would have any major ethical issues."(H1)

Those in senior positions showed a thorough appreciation for ethical challenges and, as they had a higher level of involvement in operational aspects of the libraries they oversaw, were able to exert more control over such decisions.

The two interviewees who worked in health libraries expressed confidence that ethical issues were addressed at some stage due to the nature of the NHS and the fact that most medical professionals are trained to asses such things. However, they themselves had no experience of how such processes were handled, outside of being informed of new policy:

"…in this environment because we're quite a quiet library and most folks are health professionals who have a good understanding of ethical issues anyway, I don't think it happens a lot." (H1)

"…they probably do think about ethics because it is and it should be in their consciousness really because of the type of job that they've got."(H2)

However, the two participants from an academic library conveyed a high level of involvement in and control over projects related to the library, so such decisions were made internally and guidelines regularly developed, although the library did not have any specific ethical documents. An overarching institutional policy was referred to, although how effectively it was policed was unknown:

"…trying to increase the use of proper procedure and practice… rather than just say here's the technology, we're putting it in… There's been a tendency to bring in unnecessary technology in the past so we're trying to move away from that." (A1)

"In this institution certainly [ethics are considered] - the different colleges might be slightly different… but there is an overarching University ethical policy that's adhered to." (A2)

"-We could have done projects without ethics approval I think and nobody would have known…
-No, nobody would look that up."(A1/A2)

"On some occasions there won't be any institutional guidance or institutional [policy] for handling these things." (A1)

When it came to technology in particular, one interviewee stated that:

"…the best kind of way for me to sum it up for public libraries is that, in terms of content that you're buying in - old fashioned stuff like books - you can make very clear decisions yourself. When it comes to technology everything, including the ethical decisions, are outsourced… to other people… you've got very little control over it… if you feel that there's a right to access certain information, there's hoops to jump through." (P3)

These issues also tied into the theme of codes and guidelines and levels of staff awareness regarding these.

4.2.2 Codes and guidelines

All interviewees were aware of the existence of ethical codes, both from CILIP and within the wider organisation, although these were rarely referred to. One respondent stated that CILIP's guidelines for photocopying were on the wall in the library, but that otherwise he generally only consulted them when content was being challenged:

> *"You do look at CILIP's ethical code and professional code of practice but generally you just turn to that when a challenge has been made. Most content that you would get in will never be challenged." (P3)*

> *"No… I can't say I have [read CILIP's code of ethics]."(P1)*

> *"I have a lengthy library policy document which I consult but I don't think you'd see the word 'ethics' mentioned once in it. I'm sure it probably is in school policy documents, they're even more severe." (S1)*

> *"There is the CILIP Code of Ethics, it's part of librarianship training or it ought to be a bigger part. I think we have much more need for training on these issues… "(P2)*

It was commonly assumed that such policies existed within the wider organisation, though most had never read these documents or been referred to them by a more senior member of staff:

> *"The NHS will have guidelines about that. I haven't referred to them personally so maybe not, maybe they should be by everybody rather than just expecting someone higher up to have done it on your behalf." (H2)*

> *"To be honest I'm not sure what's actually in place." (H1)*

The majority of participants stated that they had never used ethical codes operationally. Furthermore, if the library was part of a wider organisation, often technology would be implemented without significant discussion with the library staff. Whether or not ethical considerations were taken into account at this stage was unknown:

> *"If somebody's offering you money to bring in a system, you might not have any other way of bringing in that system. You just go for it there and then but you might not have all the systems in place to deal with the kind of issues we've been talking about. So I'm sure that's happened from time to time."(P1)*

When asked whether they thought clearer codes or guidelines for handling technology would be beneficial, there were a variety of responses. Several stated that guidance on the proper use of social media and content creation would be a great benefit as a lack of confidence or any feeling of solidarity within the profession could be partly responsible for the often slow adoption of tools such as Twitter or Facebook. While authorities such as Edinburgh, with a very clear strategy for using these tools, were vastly ahead of the curve, many other authorities floundered and it was felt that support from the profession was needed:

> *"When it comes to the creation of content, yes, because at the moment I would say that with the exception of a few services there's a general level of, I wouldn't say apathy but fear. Not necessarily just how to use them, but what we can put on them, how we can use them and to have greater guidelines coming from a centralised source … Then the services within the council can… look at this, and see that they're not alone… a lot of them think if they make a mistake they're on their own and they've not got anything to refer to." (P3)*

> *"…one of the big things I've found recently is using [social media] properly. I don't know that we do… maybe something needs to come in, like a better understanding [of what it's for]. We don't use it socially, currently, we just put things out but we're not interacting which is the point of it." (H2)*

In the NHS based libraries, the predominant feeling was that ethics were largely taken care of by the time librarians had to deal with them:

> *"To be honest I have no idea [whether CILIP or NHS policies would be consulted]. [Other managers] in charge of all of the sites would decide that sort of thing… I don't know if there'd be any need for improvements here… if we stick to the policies, most of the time folks understand." (H1)*

In contrast to this, a school librarian expressed a desire for "something that we can use against our employers" as he felt that the wider organisation exerted a great deal of control that they were not necessarily equipped to handle:

> *"[A professional body] should get into this, I think it's one of the areas they should be doing… it shouldn't be left to individual librarians and it certainly shouldn't be left to employers… a lot of employers would have even less idea than we do of what ethical situations are… If [ethical issues are] considered, it's not been considered in an open, upright way in a sense that it's mentioned or that committees are formed to think about it." (DC)*

A librarian in a senior position expressed a desire for a "call to arms" in the profession and a level of organisation that would allow libraries to capitalise on the intrinsic value they are perceived to have and the trust that they often hold in communities, adding:

> *"…it needs to be discussed considering the continuous development of new technologies and the proliferation of the internet." (LM)*

One public librarian said in terms of hardware they may not be useful, as he did not see that technology presented much in the way of new ethical dilemmas in libraries. Another pointed out that anything too prescriptive would be of little use, although he also stated that he did not use CILIP's code but instead kept abreast of issues via blogs and the web:

> *"It's good to have guidelines. If they're too prescriptive or they date quickly, they're no use. So as long as somebody's constantly reviewing them, somebody that's aware of new technology…and how they will impact on libraries, not just how they have impacted on libraries…" (P1)*

> *"I keep abreast of most of those things, through the web, through blogs… most issues will come up through social media and will be much more responsive, what do you think of this, rather than through a sort of formal process."(P1)*

Those in the academic sector were unsure whether it would be beneficial, but agreed that greater discussion would not be a bad thing. It was suggested that such discussions could be incorporated into working groups for assessing potential implementation, or into an educational program:

> *"Don't know that strict codes and guidelines would be particularly useful because it limits libraries." (A2)*

> *"Something needs to be put in place and I don't know whether that's guidance or codes or something, for people to actually understand [the potential]… Sometimes that's where you need to start, is just thinking about potential issues." (A1)*

If such codes or educational programs were to be developed it was generally agreed that they would be best coming from the profession as librarians were thought to have a firm grasp of such issues:

> *"There's a big educational program required that would be better coming from the profession. Whether you can actually move that into guidelines about how this would impact on ethics, I don't know." (A1)*

However, there was a lack of faith in CILIP as a professional body that suggested other areas may need to be looked at:

> *"There is information out there but one of the problems I've got with CILIP is they seem to hide in plain sight a lot of the time… I don't know if they promote themselves very well." (P3)*

4.2.3 Ethical dilemmas or issues

Almost all of the interviewees stated that they felt librarians encountered ethical dilemmas on a day to day basis. The examples most commonly given are shown in Figure 17. Access included references to Internet filtering; privacy included references to surveillance; censorship included examples of challenges to content; and advertising included the potential endorsement of products or political parties.
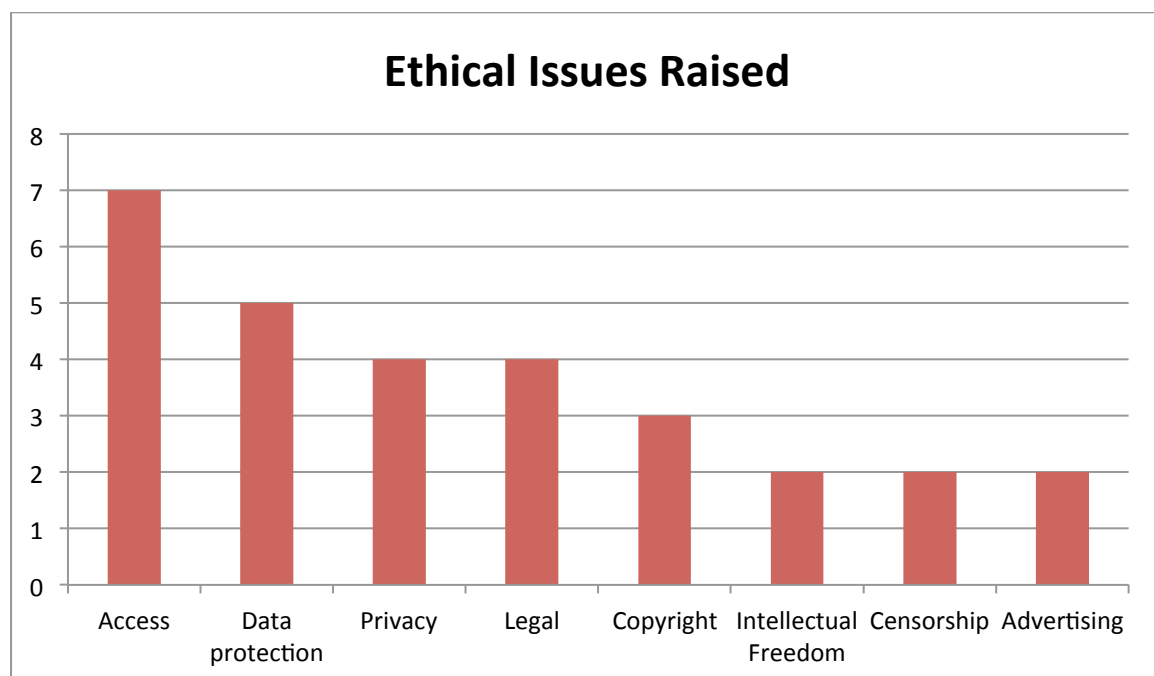
Figure 17: Ethical issues mentioned by interviewees.

However, over half of those interviewed suggested that these were not new issues for libraries and that technology had the potential to exacerbate them rather than raise new concerns. One respondent expressed the opinion that CCTV and surveillance were a commonly accepted part of life:

> *"…if you're using a public service there's an expectation that there's going be a level of surveillance and I don't think that that's a new thing in libraries… even in the early 19th century you had the panopticon… a lot of libraries would have been designed around a central point where everyone could be observed… [I] see them as an extension of things that we've already got… I don't see [technology like RFID or self-service machines] introducing any hugely new ethical dilemmas." (P3)*

"It's not a new dilemma, it's always existed, just more so." (A1)

"Even older systems used in libraries allowed viewing of borrower history, so it's like new technology and old arguments if you like." (P2)

One health library worker stated that they commonly tried to add value, such as recommending material like Amazon do:

"…it's not as if people are not expecting it anymore but are they right to expect it from their library, should they expect a different kind of service…" (H2)

Another stated that filtering was accepted as part of life by staff within the NHS which contrasted with public librarian perceptions of filtering - this is likely largely due to the NHS being a workplace and the existence of the Knowledge Network, which allows staff access to accredited sources and is maintained by NHS Education for Scotland, should provide most of the information needed for performing their duties.

Despite the predominant opinion being that technology does not raise new ethical dilemmas, on reflection participants could think of a number of areas where ethical challenges related to technology. One public librarian described an occasion where the automation of a system resulted in sensitive information regarding overdue books on an underage ticket being sent to the child's guardians:

"…that's the problem with technology - software that automatically sends a letter out, there's no control over that, there's no human intervention… we've got this wonderful bit of software and I would never go back to card catalogues, but you can raise these issues… you've got software that's effectively blindly doing a job and it's resulted in this. It's not hard to see certain situations could arise similar to that as well." (P3)

One public librarian stated that most library staff were so keen to assist users that they sometimes forgot about ethical issues. This was also stated by one other public librarian:

"…they know at the back of their mind, but most library staff just want to help people, so they probably give information out when they possibly shouldn't… more and more they need to think about these sorts of things." (P1)

"Regardless of whether you're using it for reasons that might be beneficial to someone or not you have to be very careful about how you're using their information…" (P3)

A senior staff member also stated regular library staff who were not professional librarians were "not generally familiar" with ethical codes. Additionally, she argued that placing community members in charge of libraries was highly unethical because they have received no such training and are perhaps less naturally inclined to consider these issues:

> *"They think that libraries are just a collection of old books, that the person in charge is going to be as unbiased and open as a trained librarian, that their information and answers are proficient." (P2)*

Complaints or concerns regarding ethical issues had not been raised by users or staff that interviewees were aware of. However, librarians conducting staff training in an academic library stated that concerns had been raised during discussions of new technology. For example, a concern that the development of a library game would result in students neglecting their studies or that by encouraging the use of mobile apps and services the library was endorsing technology that is detrimental to the environment:

> *"Somebody brought up the effect of us endorsing mobile technology and its effect on the environment and it would never have crossed my mind… we did have some ethical discussions when people were blogging about their experiences of the training and asking us about it, what the library's ethical position was on this." (A1)*

4.2.4 Technology

The current technologies mentioned by the interviewees are presented in the graph in Figure 18 below. They are generally similar though several show larger uptake of certain technologies, with health libraries at the lower end of the scale. This may be because the majority of services offered in health libraries are included in the Knowledge Network – such as literature searching and analysis, and access to online databases – and so fall under 'online services'.

It should be noted that these are only the technologies explicitly mentioned in interviewee responses and it was generally assumed that most libraries offered services such as printing and photocopying unless stated otherwise. It is therefore acknowledged that this does not represent the full range of technology related services being offered and further exploration of this would be recommended, as collection of this information was unfeasible due to time constraints and the potentially limited knowledge of interviewees.
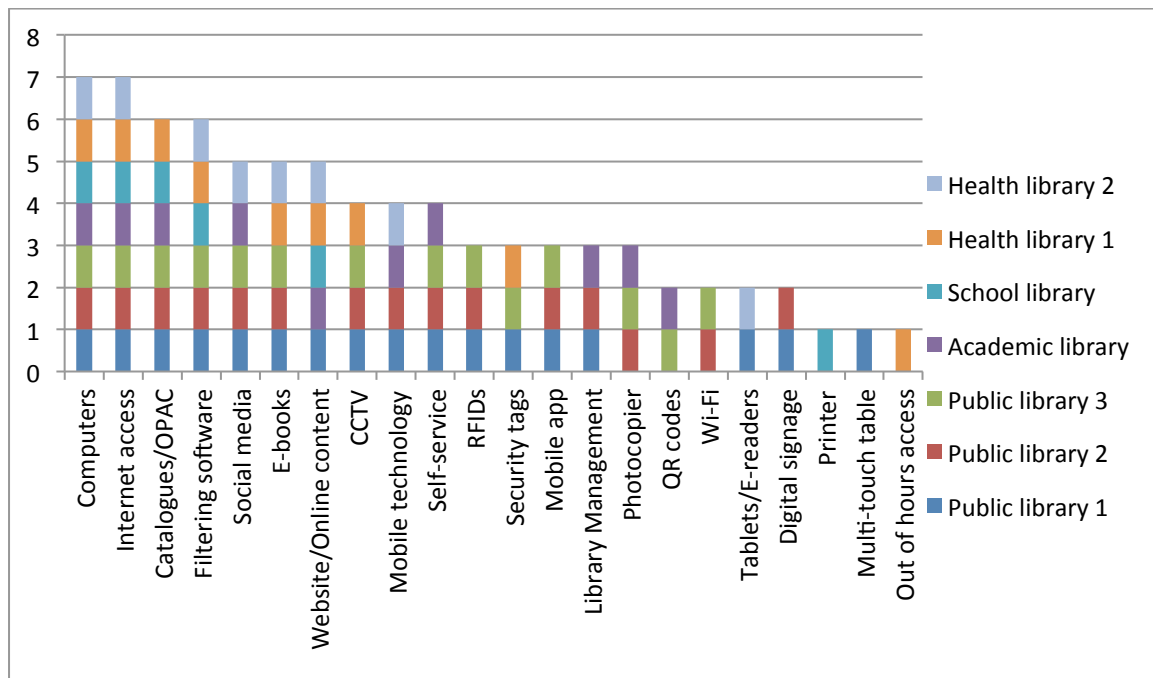
Figure 18: Portion of libraries which offer each service.

Figure 19 shows potential future technologies mentioned explicitly by interviewees. Those in public libraries in particular envisioned a range of innovative services being introduced. Interestingly, push technology and near field communication to allow payment by phone were mentioned, both of which have been explored as potentially invasive technologies. They agreed that a move away from PCs into 'bring your own device' is likely, though in some cases lack of coordination may make this a slow process. The academic librarians also mentioned a number of interesting projects on the horizon. In contrast, one health library saw little likelihood of significant technological advancement, other than the installation of Wi-Fi, and a school librarian stated only the introduction of e-books is being considered for the near future.
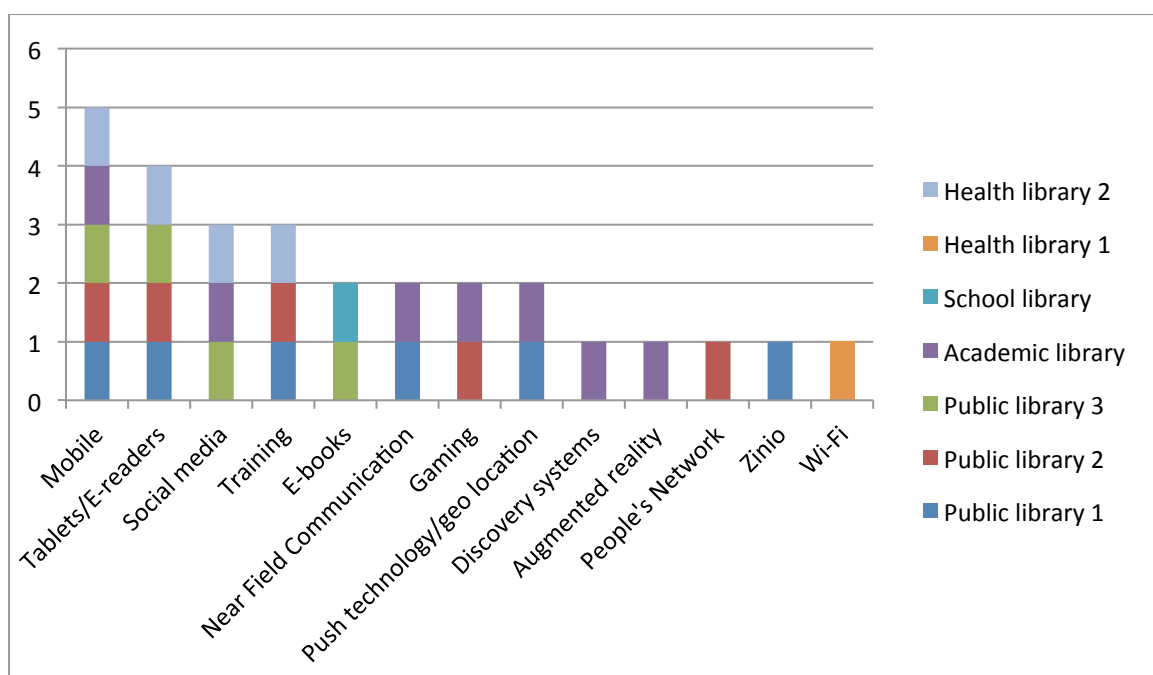
Figure 19: Potential future technologies in libraries.

4.2.5 Implementation and planning

The level of librarian involvement in the planning and implementation processes for new technology was found to vary significantly between interviewees. Two librarians in senior positions were obviously much more involved than frontline staff as they oversaw a large number of libraries. One in particular stated that the planning process and decisions about what to implement tended to come from a combination of the local authority, library staff and his own ideas.

Librarians in an academic institution indicated that they had a high level of control over library projects. They also noted the importance of a supportive management team which allowed them to conduct library business as they saw fit:

> *"There's a group of us that are interested in technology who are always reading around for ideas. We've got representatives from across the library … a range of people putting their minds [to how] we can take technology and use it appropriately." (A1)*

> *"[We have a] very broad strategy, that has a lot of ideas… every year we set our work targets for those and people have an academic year to implement. Some are deliverable, some are aspirational… we set up small working groups from across the library. At the end of the third phase [we will] assess what worked and what didn't, where there's still work that needs to be done." (A1)*

Additionally, they were increasingly aware of the input of their users and organised regular focus groups to ensure all services they were implementing were based on legitimate user needs. In contrast, a school librarian described most decisions as being outside of his control:

> *"There is a planning process but it's not at my level… sometimes they'll ask for my opinion… at the end of the day, you're not involved in the planning process, not always." (S1)*

Further, health librarians working on the frontline had little involvement in planning and implementation:

> *"Because I've not really been involved, I don't really know [how things are implemented]… I did try to make a case for getting Mail Chimp… but wasn't allowed. So I maybe didn't get to implement something when I would have wanted to." (H2)*

> *"We don't get much in terms of advancement from IT, I think they've got a lot of stuff to deal with in terms of the wards… usually IT just land it on you. You might get a couple weeks' notice, but anything like that no I don't think I would be in the planning. Unless it was something very library specific… if it's an IT sort of thing, I wouldn't be involved at all." (H1)*

Public librarians also seemed to encounter a high rate of external decision making in regards to technology:

> *"Most hardware is put into the libraries from outside of the service as well. Our computer system, the computer network, the Wi-Fi network, is all monitored externally." (P3)*

> *"…if you're within a council service… the decisions are made above not just the librarian, not just the senior librarian but with the principal librarian… and a service manager for say, say you're lumped in with education or with sport and recreations or leisure… even then you can find that they're like a smaller partner… So implementations in terms of hardware… would be made by a general manager who probably knows nothing about library services, an IT department who are just rolling out things across a service." (P3)*

Most interviewees, regardless of their level of involvement in planning and implementation, indicated that they generally exerted the largest amount of control over stock selection and content. However, even in this case, decisions regarding filtering software were largely made by the wider institution:

> *"Content on the other hand is within your control… you usually have to pass it by the censors of the central council service."(P3)*

Two senior public library professionals and those in an academic library indicated high levels of consultation and testing with users regarding implementation. In these cases ethical considerations were noted as part of the process although:

> *"They tend to be not talked of directly… a lot of it would be understood in new technology… we want to make sure that we're very diverse… [and] putting in hardware that will work for everyone." (P2)*

For those interviewees who had not been highly involved in these processes, they were unsure of the level of engagement being undertaken by the wider organisations and had seen no evidence that it was taking place, with the exception of health librarians who again stated that due to the nature of professions within the NHS were "quite good at considering the potential dilemmas".

4.2.6 Wider organisations and stakeholders

The majority of interviewees described negative experiences with the wider organisation the library was a part of, sometimes largely based in an uncooperative IT department who were suffering from their own budget and staffing issues:

"…frequently decisions aren't taken by me on this library, they're taken by the schools or education departments and they'll come down… at times you've absolutely no input whatsoever… those in charge don't always percolate information downwards." (S1)

"There can be difficulties with IT services, in terms of technology." (A2)

Several were also of the opinion that the wider organisation they were part of may not be best placed to make ethical decisions:

"You might find some of the people that make these decisions don't actually realise the implications of it."(S1)

Senior staff members were found to exert a great deal of control over processes and library planning, although in the public library sector they could find themselves being forced to react to new policies which they had not been involved in creating or dealing with implications from the wider authority:

"… if someone's got a pot of money somebody says, go for RFID without thinking, what are the technological implications, what are the security implications. How can somebody change your tag with their phone? Or the NFC capability, all that sort of stuff." (P1)

One health librarian described issues with previous policy changes, for example when a decision was made to deny students access to computer and printing services in the library. This created a situation where the librarian did not agree with the policies of the wider organisation, but had to adhere to them:

"A dilemma for folks on the front line like myself because they'd been using the service for years and we had agreements with the universities, so it did feel like we were doing them a great disservice… but the policies are there for a reason and you just have to go with that, if it's been decided at the top level." (SW)

Conversely, four interviewees mentioned the wider organisation in a positive light. While the school librarian's experiences had been predominantly negative, he also described the recent refurbishment of a number of schools where suggestions from staff were taken on board by members of the local authority. The academic librarians noted:

"… our senior management team have been incredibly supportive, because a lot of these things come from down here [from library staff]. It's important to have that kind of [support]." (A1)

It was found that the wider organisations often exerted a high level of involvement in and control over planning and implementation processes in the libraries discussed, coupled with a low level of general consultation with librarians. In light of this the trend for dealing reactively with technology in a generally ad hoc fashion is unsurprising as library professionals are not being given the time to consider such issues.

The task of re-educating and negotiating with wider organisations would be large and most likely fruitless unless concrete examples of unethical practices potentially leading to litigation could be given. One interviewee suggested that the professional body should be talking to press and journalists to highlight the potential issues and take the angle of educating users to make employers take notice:

> *"I think it's about time that the librarians, CILIP, are making a policy and then talking to journalists, friendly journalists and saying, 'do you realise these are being talked about, this is being done?'"(S1)*

Although it was also felt that library users were unaware that "librarianship is a profession that you can charter in", far from expecting librarians to tackle ethical issues on their behalf.

In the case of the projects implemented by the academic librarians interviewed, students had even expressed impatience with "barriers" in mobile technology and the "fear" of threats to the security of personal information which seemed to belong more to the librarians than the users:

> *"[The library game is] all interacted through social media… [we'll] make it explicit to the user that this is going to be shared… a lot of the feedback we get from our mobile surveys are don't put so many barriers… just let me have access… expectations are so completely different than they were even [a few years ago]." (A1)*

This feeling that users could be dismissive of threats to privacy or personal information for the sake of convenience was pervasive, although one interviewee noted that this increased knowledge of technology has led to increased awareness of standards:

> *"… certain people in the community are much more savvy in pushing for standards. So until we get to that standards agreement between all the providers there'll always be debate about systems and that kind of thing." (P1)*

4.2.7 The role of libraries
There were a number of overarching roles for librarians that were mentioned or viewed as important to interviewees. The role of providing access seemed to be most common, which was unsurprising as it is generally noted as a core value of the profession:

"With the type of library I work in, we're not controlling the physical space and how people access [the service], it's hard to tell if it's really that useful when they have to wheel about a laptop chained to a trolley to use the services." (H2)

"On one hand you're doing your best to help the children, on the other hand you've got various societal restrictions which you have to bear in mind, i.e. what they get access to, copyright, how they access information…" (S1)

Several noted the potential for a breakdown in the trust users had in libraries as a detrimental side-effect of technology:

"Many of these services are not maintained by the library, we have an administrative role but it's a third party who sells them. To the user it's potentially not seen as a third party, it will be seen as the library. So that could lead to a breakdown in trust." (A1)

"We face a real dilemma of how do we keep what the public library is and what the public see us as trustworthy and the acceptable face of council and government." (P2)

This was seen as part of the intrinsic relationship with stakeholders which is unique to libraries and a key part of their worth:

"I think you've got responsibilities to your users if you're providing a service." (H2)

"Even if they don't use the library they see the value of it for their kids, or someone they know. It is, or it used to be, the first point of contact for information." (P2)

Another key element of this relationship seemed to be teaching literacies, whether these were financial, literary or digital:

"… computer literacy is something the children will have to have to survive in the outside world, so using [computers] in libraries is a good thing. As long as you try and get it over to them that it's a source of information, not the source of information. It's important to make sure both children and staff understand how best to use resources like Google and Wikipedia and understand that not all information found there is accurate." (S1)

"We run an information literacy class… for different age groups on how to effectively search for information and how to evaluate websites." (P3)

"…should be and are currently involved in giving classes in all kinds of literacy, financial, digital or literacy. There's been a cultural change… and the libraries need to manage these resources properly." (P2)

"We have a role to help people learn how to use these things. Because soon enough they're going to be disenfranchised by not being able to do things on the web. So the sooner we get them in, sooner we get them used to it, the better." (P1)

These were also discussed as ethical responsibilities, which the majority of interviewees agreed were part of the library profession, although they acknowledged that some responsibility for personal security lay with users:

"Yes… Seems a strange question for you to ask, because it just seems obvious to me… I'm thinking about that every day and then I do constantly have to say to staff, you can't do that because it's data protection act…" (P1)

"When you're choosing material you have to be very careful where you put it. You're responsible; a lot of people are coming in, especially kids, to do projects." (P3)

"Even the most basic Library Management System collects data, we are responsible for making sure it's handled appropriately." (P2)

"I think it's everybody's responsibility. Especially in the NHS." (H1)

During the course of the interviewees, the impression was that librarians dealt with ethical issues related to technology in a largely reactive fashion. This was felt to be unavoidable to an extent, due to the situation of libraries and the nature of rapid technological developments, although a more proactive attitude was advocated:

"We might not think about it very proactively, but if we do come across anything that's out of sync or prejudiced then obviously we make sure we address that." (H1)

"I think it's something we should be proactive about… things like new technologies need people, in control of the technologies, to stop them from getting carried away… [librarians] come into that." (S1)

The next and final chapter will summarise the key findings illustrated here and draw a number of conclusions which will be tied into the original research objectives.

Chapter 5: Recommendations and Conclusions

This study successfully achieved its aim of answering the research questions and objectives identified in Chapter 1, relating to the research gap explored through consultation with the literature. This chapter will summarise these research questions, illustrate how the objectives were met and how the literature review and other research methods were applied to best answer these questions, as well as addressing the extent to which the learning outcomes specified by the researcher at the outset were achieved. Additionally, any limitations of the research will be noted along with potential areas for further research.

5.1 Research Questions

The research questions identified in Chapter 1 were:

1. What technologies are currently present in libraries and what new technologies are likely to be introduced in the future.
2. What the characteristics of these technologies are and whether they possess any ethical implications.
3. What policies currently exist for tackling ethical issues in libraries and whether they are applied specifically to new technology.
4. What perceptions of these technologies, and the importance of ethical considerations in relation to them, are held by staff and users in the library sector.

Question 1 was answered to a degree in the literature review (see section 2.2) and partly corroborated by consultation with library users and staff via surveys and interviews (see sections 4.1.2 and 4.2.4). More detail could be gathered on the technologies currently present in libraries by surveying a larger number of libraries or through observation. Additionally, potential future technologies could be investigated more fully via exploration of literature which specialises in this area.

Question 2 was also answered through exploration of the literature (see section 2.2) and during interviews, through discussion of the ethical implications of technology, the kinds of ethical challenges encountered in the field, and how often these relate to technology (see section 4.2).

Question 3 was partly explored in sections 2.1 and 2.2 by referring to existing policies and codes. Additionally, ethical codes and policies were discussed during surveys and interviews, successfully gaining an insight into their importance in an operational capacity and their existence within libraries, as well as the wider organisations they are a part of (see sections 4.1.5 and 4.2.2). Further investigation would be beneficial, perhaps through analysis of existing codes in wider organisations and a more in-depth review of the use of such codes in practice.

Finally, question 4 was fulfilled to a degree through analysis of data collected from professionals in the field (see section 4.2). However, the small sample size meant that the results were mostly indicative and exploration of the emergent issues within a larger group would therefore be beneficial. Furthermore, user perceptions were not able to be fully addressed here.

5.2 Research Objectives

The research objectives developed from the aforementioned questions were:

1. Determine what current technologies are being used in libraries and what new technologies are likely to be introduced in the future.
2. Evaluate the use of existing policies and codes in library institutions for tackling ethical issues surrounding technology and discover whether there have been any sanctions imposed upon particular institutions.
3. Establish what perceptions exist amongst library staff and users regarding the ethical implications of implementing new technologies and how important these are considered on an operational level.
4. Develop a set of recommendations for tackling ethical dilemmas raised by new technologies in the future.

These objectives were met via the identification of a research context through detailed consultation of the literature. A lack of in-depth discussion of how ethical challenges related to technology are tackled in an operational context was discovered and the potential benefits of further research into this area deemed important enough to the profession to justify this project.

A survey was designed and disseminated amongst neo-professionals studying ILS in order to identify potential themes, corroborated by the literature review, and inform the questions developed for interviewing library professionals in the field. The results of these were analysed and led to the identification of key findings from which conclusions and recommendations have been formed in the following sections.

5.2.1 Current and future technologies in libraries

Computer related technology, including Internet access, was the most common example of current technology given in all library sectors. Tied into this was a high level of awareness and discussion of Internet filtering and blocking software, although the level of blocking varied. Public libraries seemed to offer the widest range of technology and they were also, along with those in the academic library, involved in more innovative uses of new technology. In contrast, interviews with librarians in the single school and two health libraries indicated a generally limited use of technology, with greater emphasis on online content, rather than physical hardware.

In terms of potential future technologies, the majority of interviewees stated that they expected to see a significant increase in mobile technology or 'bring your own device', with plans for implementing gaming and push technology services. Again, the sectors which expected to see the least advancement in technology were a health library and a school library. Reasons cited were predominantly either cost or lack of support from the wider organisation that the library is a part of. All three interviewees from public libraries indicated a wide range of possibilities for their sector, although in some cases the uptake was expected to be delayed by attitudes within the profession and a lack of coordinated commitment from that same profession as a whole.

5.2.2 Use of existing policies and codes for tackling ethical issues related to technology and the imposition of sanctions

The existence of ethical codes was generally acknowledged, although they were not claimed to be often consulted or particularly useful. Interviewees were found to be unfamiliar with any of the codes or procedures for assessing potential ethical challenges that may exist in wider organisations, such as schools or the NHS. A general call for more active involvement from the profession, as opposed to employers from the wider authority, and the benefits of greater discourse amongst professionals with a higher level of training in the area of ethics and technology were agreed upon by almost all participants.

Furthermore, it was commonly agreed that increased discussion of these issues in a coordinated fashion within the profession would be beneficial as they are expected to increase alongside the continuing advancement of technologies. This opinion was often strengthened by experiences with the wider organisations the libraries were a part of, who interviewees generally agreed were unlikely to consider these implications themselves and rarely consulted with librarians prior to introducing them. The exception to this was in the cases of health libraries, as those staff members agreed that the NHS was inclined to consider ethics more seriously due to the nature of that organisation.

While exploring this research objective, an additional issue was revealed in that a high level of control by these wider organisations is often coupled with a low level of consultation with librarians in all areas, not just technology. This often resulted in feelings of being left behind or pressures to implement technology in particular without the proper time dedicated to thinking about potential issues. It is unsurprising then that there exists a largely reactive attitude, where librarians are dealing with ethical issues but on an ad hoc and informal basis. Further to this, interviewees expressed some confidence that any issues they raised would be advanced through the chain of command, but the predominating feeling was that librarians lack the support necessary to have confidence in how they deal with technology.

The exception in this case was within an academic library setting, where the culture of the university sees the library treated as any other department, with a much higher level of autonomy and control over their own projects.

Sanctions were not found to have been imposed in response to a lack of ethical consideration through discussion with any of the participants, although concerns had occasionally been raised. It was interesting to note that the majority of survey respondents supported the potential use of sanctions for breaches of ethical conduct.

5.2.3. Staff and user perceptions of the ethical implications of new technology at an operational level

There was general agreement between interviewees that technologies currently used in libraries and those which could potentially be introduced in the future can and have presented ethical challenges. The most commonly given examples related to issues of access - such as potential censorship via Internet filtering software - or to data protection - such as the increase of automated systems which deal with personal data and the different attitudes towards protecting that data which are encouraged by increased use of technology.

Despite this, the majority of interviewees stated that these were not new dilemmas for libraries. In the cases of threats to content and user privacy and surveillance in particular, participants often stated that the profession has been dealing with these issues for as long as it has existed. However, there is little indication that the proper procedures are in place for dealing with such threats, even in the face of continued exposure to them. Instead there is a vague understanding and agreement of the ethical responsibilities inherent in the profession, but a lack of any formalised discussion with an explicit 'language of ethics' cited as potentially confusing or foreign to library staff. Additionally, it was recognised by participants that new technology exacerbates these previous experiences and will continue to do so, possibly to the point that librarians find themselves unable to handle them effectively without a wider network of support or increased knowledge and discourse.

The interviews highlighted that librarians have a high awareness of ethical issues and consider them often, though they may not recognise them as 'ethical issues'. In some cases, the librarian's helpful nature and desire to provide the best service and highest level of access for users can conflict with their knowledge of how that service should be maintained and conducted. However, when asked to consider these issues in an ethical context, their importance to the profession and its users was vigorously acknowledged.

5.2.4. Recommendations for tackling ethical dilemmas raised by new technologies in the future
Interestingly, perhaps in light of the lack of formal discussion of ethics, all of the interviewees were reluctant to identify a strict set of codes as a solution to these issues. In agreement with opinions in the literature, it was recognised that anything too prescriptive may be counterproductive as they would be ill-equipped to deal with the unpredictable and rapidly changing nature of technology and may place too many limitations on libraries. A lack of faith in CILIP as a professional body capable of providing the necessary support was also noted. Despite this, a greater acknowledgement of these issues from the profession, along with more coordinated discourse from professionals with a high level of interest and skill in this area were suggested by participants as a potential solution.

In light of the above findings, the next section will more fully address the proposed recommendations.

5.3 Conclusions and Recommendations
This section has been divided into general recommendations for the sector as a whole and a proposed roadmap to aid practitioners in dealing with the issues raised here in day-to-day operations in a practical and consistent manner.

5.3.1 Recommendations for the profession
Four chief recommendations for addressing these issues within the profession are detailed below:

1. That further exploration into the relationship between libraries and the wider organisations they are a part of be undertaken, in order to address the general lack of librarian involvement or consultation regarding all elements of planning and implementation.
2. That existing policies from CILIP, IFLA and wider organisations be highlighted more effectively to library professionals, general library staff and neo-professionals entering librarianship and information management roles.

3. That CILIP take a more active role in promoting documentation regarding the proper selection and implementation of technology and acknowledge the importance of any ethical challenges that have been previously encountered or may be expected to arise in the future.

4. That the profession consider forming an ethical committee or group of professionals specialising in ethics – whether this be done through CILIP or otherwise – whose role it is to collect examples of ethical issues encountered in various sectors and how best to deal with these. In addition, the ethical implications of emerging technologies should be explored, in consultation with those who possess knowledge in that field. Based on the findings of this research, it is concluded that this will encourage good practice in regards to these potentially problematic technologies, as well as incorporate ethical considerations more naturally into the planning process. Consequently, the profession of librarianship will be better equipped to handle these challenges effectively and avoid unethical practices and potential litigation.

5.3.2 Recommendations for practitioners

The below recommendations represent a proposed roadmap so that practitioners in individual institutions are better able to meet ethical challenges raised by technology and from which best practice may be developed:

1. Where possible a committee should be formed or a staff member dedicated to addressing ethical challenges, ideally with the aid of practitioners with appropriate skills and interests, and supported by the aforementioned committee within the profession.

2. Upon the proposed introduction of new technologies, this committee or staff member should be involved in the planning process to ensure that ethical dilemmas are properly addressed prior to implementation. It is hoped that this will encourage the integration of ethical considerations into the planning process.

3. Stakeholders should be more regularly consulted regarding the implementation of new technology in the library, informed of potential ethical implications and canvassed for their opinions of these implications.

4. Regular audits should then be undertaken to ensure that all systems are operating within ethical standards and that all staff are properly informed of their responsibilities in this regard. This iterative process will ensure that any shortfalls in policy and process are properly addressed and that future challenges can be more effectively met.

5.4 Learning Outcomes

In terms of personal development, the researcher achieved the aims set out within potential learning outcomes.

Building and disseminating the survey familiarised the researcher with the appropriate software and how to best utilise the reporting options available. Future surveys will take note of the weaknesses encountered here. Experience of designing and conducting interviews was also gained, with lessons learned regarding how best to prompt interviewees and how to improve the questions with each session.

Analysing the data taken from both surveys and interviews, both quantitative and qualitative, was also illuminating and helped develop useful skills for future research and a greater familiarity with techniques used by others in the field.

Finally, a deeper understanding of the technological landscape affecting libraries and of the librarian's role as intermediary between information, technology and users, as well as the priorities of this role, was most definitely reached. The opportunity to discuss these issues with practicing professionals was highly valuable to the researcher and provided an essential insight into a variety of sectors within librarianship.

5.5 Limitations and Future Research

There are a number of potential limitations to the above methods which have been stated here for the sake of transparency and with a view to informing future research.

5.5.1 Limitations

The survey was disseminated only to ILS students, which limits the scope of the research as they are likely to be more informed of the issues in this area and how they relate to librarianship than the average user. For example, for questions six and seven, librarianship students are likely to have much more insight into ethical challenges as they have been trained to consider them. Question ten also asked whether the participants were aware of the existence of professional codes of ethics, which these students were obviously much more likely to know than the average person. This was judged to provide potential for valuable insights nonetheless, as these students have a unique viewpoint, but an accurate representation of user perceptions would require the canvassing of a much larger and more varied group. Therefore, the research presents limited perspectives which could be expanded upon.

The link to the survey was sent with an accompanying email inviting respondents to provide feedback on any issues or confusion they encountered, or regarding the clarity of the questions. These have been noted here to elucidate possible limitations and to be noted for future construction of methodologies. For example, the ranking scale could have more clearly shown which order to place the listed technologies in. The question asking which technologies participants had used could also have been rephrased to ask what technologies they were familiar with, so that it was not limited to those used in libraries. This feedback was noted for future survey designs.

While sanctions were mentioned to survey participants, opinions regarding their use were not gathered during the interview stage. Viewpoints regarding the necessity and feasibility of imposing sanctions from those in the field could provide interesting data that may form part of future interviews.

The geographical scope of the interviews was restricted by time and the researcher's available resources. Future research among a larger demographic, beginning over the rest of the UK, would be recommended to further explore the themes discovered here. In addition, it is possible that the emphasis on technology in the topic may have been off-putting to potential respondents as some may not believe themselves to possess a sufficient level of expertise in this area. As the research sought to collect as many varied perspectives as possible - from those heavily involved in the planning processes of the library, to those with a largely customer service background – it may have suffered from a bias towards those with more experience, with only one participant who possessed

less experience. To ensure a wider and more varied demographic would require interviews on a much larger scale than was feasible in this instance, but would be recommended for further research.

Finally, there were limitations inherent in the definitional issues concerning the broad categories of 'technology' and 'ethics'. In particular, some confusion was occasionally encountered on what could fall under the category of 'technology' and the researcher had to give examples which had the potential to be leading or to influence the interviewees with the interviewer's own expectations. Similarly, in the survey questions four, five and seven a particular set of technologies were listed, which could limit the participants ability to express themselves naturally, although an 'other' option was included with a request for further details where possible to attempt to compensate for this. The researcher also hoped this would encourage suggestions which had not previously been considered. These limitations should be taken into account when assessing the conclusions presented here and noted for any further research in this area.

5.5.2 Future Research

Further research might involve canvassing of users with a view to developing an educational program related to the ethical implications of technology and how best to protect against threats to personal data and security. This might also aim to raise public awareness of the role of librarians in protecting that data and considering ethical challenges.

There may also be an opportunity for the profession to invest resources in in-depth interviewing of a wider range of professionals, encompassing the rest of Scotland and the United Kingdom at least, for the purposes of addressing the lack of high profile discussion of ethics and developing an ethical committee as proposed above.

Encouraging an increased awareness of ethics and the challenges raised by new technology can only be beneficial to society as a whole. The library profession may find that the values inherent within it are ideally suited to addressing some of the threats to personal data, security and privacy which have become more commonplace with the increased use of technology. Further research could address whether librarians have a responsibility, as a trustworthy and valued part of the community, to stand against these threats on behalf of their users.

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Appendix 1: Survey Questions

Q1: **Informed Consent Form**

Introduction

This research aims to collect information regarding user awareness and perceptions of ethical issues in libraries, specifically in relation to new technology in libraries, i.e. whether they pose ethical challenges at all, how important these are and whose responsibility it is to address them.

Procedures

The questionnaire consists of 20 questions and will take no more than 15 minutes. Questions are designed to determine participants' opinions and viewpoints on a number of issues related to the topic. This questionnaire will be conducted with an online Qualtrics-created survey.

Risks/Discomforts

Risks are minimal for involvement in this study. However, you will be asked to make judgments and express your opinion on ethical matters, all of which are equally valid.

Benefits

It is hoped that this research will be of some benefit to the profession by increasing the potential for education and discourse regarding ethics and technology. As future professionals who will need to address these issues themselves, it is hoped the results of the study will be of use.

Confidentiality

All data obtained from participants will be kept confidential and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All questionnaires will be concealed, and no one other than the primary investigator will have access to them. The data collected will be stored in the HIPPA-compliant, Qualtrics-secure database, and encrypted files on the researcher's personal laptop, until 16/09/13 at latest. All data will be deleted using secure delete software prior to this date.

Participation

Participation in this research study is completely voluntary. You have the right to withdraw at any time or refuse to participate entirely and are not obligated to answer all questions. If you desire to withdraw, please close your Internet browser.

Questions about the Research

If you have questions regarding this study, you may contact Katie Edwards, at dsb12163@uni.strath.ac.uk.

Questions about your Rights as Research Participants

If you have questions you do not feel comfortable asking the researcher, you may contact Forbes Gibb (supervisor) at forbes.gibb@strath.ac.uk.

Q2: I have read and understood the above consent form and desire of my own free will to participate in this study.

Q3: What year were you born?

Q4: What is your gender?

Q5: What is your country of birth?

Q6: What technology do you expect to encounter in a library?

Q7: If you answered 'other' to the previous question, please specify.

Q8: Which of these technologies have you used?

Q9: If you answered 'other' to the previous question, please specify.

Q10: Please rank the listed technologies in order of which you think may pose the most ethical problems.

Q11: Can you give an example of an ethical problem which one or more of these technologies may pose?

Q12: Do you think these are considered prior to implementing these technologies in libraries?

Q13: Do you think library professionals have ethical codes which they must adhere to?

Q14: Do you think sanctions should be placed on any institutions that do not adhere to these codes?

Q15: Please indicate who you think would be most suited to implement these sanctions from those listed.

Q16: If you answered 'other' to the previous question, please specify.

Q17: If a potential new technology were deemed to be unethical, do you believe it should still be introduced into libraries?

Q18: Please rate the following statement: It is important for libraries to consider ethics in relation to technology during the planning process.

Q19: Please rate the following statement: Dealing with ethical challenges is an important part of a librarian's job.

Q20: Would you like a professional body within librarianship (such as CILIP) to provide more information about any ethical issues raised in libraries in regards to technology?

Appendix 2: Interview Questions

Q1: What kind of library do you work in? Public; academic; special; government; health.

Q2: Do you have prior experience in any other kind of library?

Q3: What technology is currently in place in your library?

Q4: What technology would you expect to see in libraries in the future?

Q5: Have you been involved in implementing new technology in a library? If yes, can you describe that experience?

Q6: An ethical dilemma can be defined as "a scenario in which there are competing and irreconcilable duties or obligations in which the fulfilling of one duty will result in the neglect of another." From your own experience, do you feel librarians often encounter ethical dilemmas or challenges as part of their job?

Q7: Were potential ethical challenges considered or ethical codes consulted prior to or during implementation? (If no to above question, would you expect them to be and by whom, i.e. the wider organisation that the library is part of or an ethical board assigned by CILIP for example?)

Q8: Do you think it is the librarian's responsibility to consider ethical challenges? If not, then whose is it?

Q9: Would the profession benefit from clearer ethical guidelines in regards to technology in particular?

Appendix 3: Interview Consent Form

The purpose of these interview sessions is to explore the use of ethical policies in libraries, with particular focus on new technology and how it has been implemented in the participant's experience.

The sessions will be conducted by Katie Edwards (interviewer), a postgraduate student in Information and Library Studies at the University of Strathclyde, to fulfil the requirements for my MSc dissertation. Any and all questions regarding any aspect of the sessions or the research may be asked via my personal email address: dsb12163@uni.strath.ac.uk. Alternately, my supervisor is also happy to respond to any questions, he can be contacted at: forbes.gibb@strath.ac.uk.

Participation in these interview sessions is voluntary. Sessions can be concluded at any time and participants are under no obligation to answer all questions. The sessions will be recorded and transcribed, and all data collected will be stored in encrypted files on a password protected laptop and backup hard drive belonging to the interviewer. This data will be destroyed using secure delete software once the research is complete, by 16/09/13 at the latest. When presented in the final draft of the dissertation, all data taken from these sessions will be anonymised.

Participants will be informed of the results of the research as soon as possible after its conclusion.

By signing this form participants declare that they understand all of the above information and that all questions have been answered to their satisfaction prior to any interview sessions.

Print name:

Signed: