

Running Head: CASE STUDY OF E-BOOK USE

Case Study of E-book Use in an Academic Library: A Communication Perspective

Master's Thesis Presented By:

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Abstract

This research examines the integration of electronic book (e-book) technology within an academic library. The University of Ottawa library is explored as a qualitative case study. The perceptions of use and communication pertaining to e-book adoption from the perspectives of students, faculty members, and librarians are combined with other documentation to provide a comprehensive examination of the case. Rogers (1962; 2003) *Diffusion of Innovations* provides the theoretical framework to guide the study and structure its analysis. Main findings revealed the following: (1) participants preferred print books, (2) inadequate communication occurred between students, faculty members, and librarians, and (3) information literacy training initiatives were insufficiently standardized. This study contributes to communication research by examining adoption of e-book technology and the spread of ideas within a social environment. It also furthers *Diffusion of Innovations* by confirming that even when individuals acknowledge advantages of a communication technology, it is not necessarily adopted.

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Chapter 1: Introduction

Electronic books (e-books) have changed how people read. In 1971, Michael Hart created the first e-book library, Project Gutenberg, which currently offers over 40,000 e-books (Project Gutenberg, 2012). E-books' influence has become so substantial that the significance of the development of the e-book has been compared to the invention of the Gutenberg press (Dunlap, 2008; Rao, 2003). E-books have altered reading in education and research, but despite their great potential, they have yet to outsell paper books in this market (Allen, 2001). Educational institutions and academic libraries must respond to the growing presence of e-books and ensure that users remain aware of the resources offered. E-book use in education will likely continue to grow over time, despite hindrances to its adoption (Nelson, 2008).

Issue

Although there has been some discussion of e-book use within academic libraries, a cohesive examination of the broad range of issues presented throughout the process of their integration has yet to be presented. More specifically, an adequate understanding of the nature of student, professor, and librarian use and perceptions of e-books, as well as the characteristics of their communication about resources, has not been provided.

Understanding e-book adoption is important due to libraries' challenge of providing pertinent resources while operating within the confines of their (often modest) budgets. Additionally, students and professors need to be aware of resources and how to use them effectively for research purposes. Librarians must also understand these issues to allow them to improve information literacy initiatives.

Knowledge pertaining to academic e-book use is lacking in several ways. First, it is largely unknown if and how e-books are used in university libraries. As Blackwell (2001) noted: "There is no single source for metadata on e-books, and no way to search across the entire e-book universe by topic" (p. 40). Even if such data was available, it would not provide an adequate explanation of how users perceive e-books and the factors considered in their individual decision-making processes. Second, the reasons students, faculty, and librarians decide whether or not to use e-books have not been described and the preferred format for these groups (electronic or paper) has not been identified. Third, an examination of how students, faculty, and librarians learn about the availability of resources and relay their format preferences has not been provided.

Theoretical Framework

Numerous theories pertain to technology adoption and behavioural decision making. The researcher reviewed several theories that appeared to be relevant to determine which might be most useful to inform the framework of the current study. *Diffusion of Innovations* (Rogers, 1962; 2003) was identified as the most relevant to this study and provided insight into how and why certain technologies were or were not adopted by users. Originally developed by Everett Rogers in 1962, *Diffusion of Innovations* provided explanations of key aspects of the technology adoption process within a social system. Other theories were deemed less applicable to this case due to their focus on predicting behavioural outcomes as opposed to understanding the adoption of technology and the individual's decision making process.

Rogers (1962) explored 506 research reports and aimed to "synthesize and evaluate available research findings and theories on the diffusion of innovations" (p. 6). The fifth

edition of Rogers' *Diffusion of Innovation* (2003) built upon the original volume, but provided a modified and slightly expanded model of diffusion. Rogers explained that new innovations could lead to a level of uncertainty among potential adopters. The innovation-decision process outlined by Rogers provided insight into how the individual progresses from knowledge of an innovation to its eventual adoption or rejection. This five-stage process helped the individual evaluate the uncertainty associated with adopting the innovation. Rogers described: "Thus, *the innovation-decision process is essentially an information-seeking and information-processing activity in which an individual is motivated to reduce uncertainty about the advantages and disadvantages of the innovation*" (2003, p. 14).

The stages of the innovation-decision process used by individuals in their adoption decisions, as presented by Rogers, could be valuable in developing an understanding of the dissemination of e-book technology amongst users within a university context. Rogers noted that even technological innovations that are advantageous might not be quickly adopted by users and provided a theoretical interpretation of the process to help explain why that might be.

Although *Diffusion of Innovations* is acknowledged and provides the theoretical framework for this study, it is important that the findings from this case be demonstrated within their unique context, rather than being manipulated to fit within this framework. Instead, the nature of this study is based on an exploratory case study approach (Yin, 2003). According to Yin, one of the applications of case study research is "to *explore* those situations in which the intervention being evaluated has no clear, single set of outcomes" (p. 15). *Diffusion of Innovations* can be useful in providing an understanding of how key themes that emerge in the data collection and analysis stages might be related to each other and

further, how these themes could be indicative of technology adoption more generally. While this case study does not intend to provide generalizable theories pertaining to e-book use, valuable information might be derived from this study when combined with other similar studies and applied to other contexts.

Purpose

The purpose of this research is to explore experiences with e-book technology within an academic library. These encounters will be described in two major ways. First, an understanding of the use and perception of e-books by students, faculty, and librarians will be developed. Secondly, how these groups interact with each other and how students become aware of and communicate about library resources will be described. This study is relevant to the study of communication because it examines the adoption of and communication about a new communication technology. For the purpose of this study, the University of Ottawa will be examined as a case.

Definition of Terms

Many definitions of the term 'e-book' have been presented previously. Landoni, Wilson, and Gibb (2000) stated: "The definition of what an electronic book is, or has to be, is quite loose and unfortunately this is unavoidable because of the nature of the object and the difficulty in defining something with so many aspects and functionalities" (p. 415). The current study will utilize a broad definition of e-books. Specifically, the term e-book will be used to describe "a general term for the use of book content in electronic form" (Bell, 2009, p. 18). The term e-book will be used mainly to refer to the electronic text, rather than the specific device used for reading the documents. Furthermore, the term 'e-book' will be used interchangeably with the term electronic book, ebook and digital book. The prefix 'e-' or

‘electronic’ will be used to describe any document in electronic form such as e-textbook, e-journal, or e-resource. The terms ‘print book’ and ‘paper book’ will also be used interchangeably.

Introduction to the Case

This study examines e-book use at the University of Ottawa library, where a growing collection of e-books is offered. In April 2006, the collection had over 223,000 e-books and the University of Ottawa’s website stated that medicine, literature, and social sciences were featured subjects in the e-book collection (2010b). In July 2006, the library announced on its website that it was possible to find both print and electronic resources from the library using Google Scholar. In February 2007, the availability of the Springer eBook collection was announced, which covered all areas, but emphasized science, technology, and medicine. The collection continued to grow and by April 2009, the collection included 366,999 e-books (University of Ottawa, 2010c). For a more detailed description of the library holdings, please see Table 1, below.

Table 1

Library holdings as of April 2009 (University of Ottawa, 2010c).

| | |
|---------------------------------------|-----------|
| Print books (Volume equivalent) | 2,140,245 |
| E-books | 366,999 |
| Print Journals | 6,842 |
| E-journals | 43,217 |
| Micromaterials | 1,926,931 |
| Non-print (e.g. maps, videos, slides) | 772,161 |
| Article Databases | 528 |

On June 18, 2009, the ‘What’s New!’ section of the library website provided a message from the university librarians which discussed the library’s position in an uncertain economy. It stated that the purchasing power of Canadian libraries had declined throughout the course of the previous decade and cited subscriptions costs, specifically for journals, as particularly problematic. These challenges resulted in the library performing a review of its collection and on February 2, 2010, the website announced the outcomes of the 2009 Collection Reassessment. It stated:

The goal of this exercise was to ensure an appropriate balance of expenditures between journals and books, enabling us to continue to provide the diversity of materials needed by the university community for research, teaching, and learning, both in the short-term and long-term. (University of Ottawa, 2010b)

Further, they described: “Primarily by eliminating duplication and reducing overlap, we were able to identify 605 subscriptions that could be cancelled, allowing us to reinvest \$405,760 in our book collection to help ensure a sustainable and balanced collection” (University of Ottawa, 2010b). As part of the Reassessment, fourteen major license agreements were renewed with the national consortium, Canadian Research Knowledge Network. The website also emphasized the importance of collaboration between subject librarians and faculty members:

Each subject librarian will be contacting faculty members to enlist their assistance in assessing titles and resources and to ensure that decisions are made with a full understanding of the impacts. The success of this project depends on the quality of dialogue between the library and faculty, to ensure that we are working together to

focus on teaching and researching priorities, and the mission of the university as a whole. (University of Ottawa, 2010b)

The library's website was also used to promote the e-book format to users. It stated: "E-books are an important new way of finding scholarly information 24/7, from your home, office and even in the library" (University of Ottawa, 2010b). The webpage on e-books suggested that users could find e-books by either searching the catalogue broadly or by refining their searches to display e-books exclusively. Additionally, the website provided links to other e-book providers which had not been included in the catalogue at that time (University of Ottawa, 2009a). Several of the e-book providers listed were subject-specific, but others offered more generalized collections such as Ebrary, MyiLibrary, Springerlink, and Scholars Portal Books. The library website also proposed how e-books might be used: "These can be reference works for quick verification, such as encyclopedias; research books written for an academic audience; or textbooks used by professors in classroom teaching." It also conveyed the some of the key benefits of e-books such as search, highlighting, annotating, and ease of citation.

Although e-books have been promoted on the library's website for several years, currently little, if anything, is known about e-book use in the Department of Communication at the University of Ottawa. Students have a vested interest in library collections development and require library services to conduct research. Consequently, it is imperative that students are aware of resources and how to use them effectively.

Central Research Questions

With the purpose of the study, theoretical framework, and introduction to the case established, the following research questions were developed:

RQ1: How do students, faculty members, and librarians at the University of Ottawa view e-books as an academic resource?

RQ2: How do students, faculty members, and librarians at the University of Ottawa describe their decisions to use or not use e-books?

RQ3: How do students, faculty members, and librarians at the University of Ottawa communicate about resource availability?

A qualitative case study is an appropriate methodology to address these questions. Case studies can be either qualitative, quantitative, or a mixture of both (Gerring, 2007). A qualitative research approach was chosen for this particular case, primarily due to the exploratory nature of this study. Case study research has become a common research method in a variety of disciplines (Yin, 2009). The literature review will demonstrate that case studies have previously been used in similar studies, which have examined the process of integrating electronic resources within an organization or library. Furthermore, due to the fact that the state of the research on e-book use in academic libraries is still in an exploratory stage, a case study is preferable. Additionally, case study research is particularly useful in exploring situations that rely on context to be understood, as it is in this case (Yin, 2003).

Structure of the Thesis

The research is presented in six chapters. Chapter one has introduced the issue and the case and provided the general background needed to understand the research and its goals. Chapter two examines the relevant research literature and demonstrates that while some issues regarding e-book integration have been studied previously, there are gaps that require further attention. It also details the innovation-decision process described within Rogers' *Diffusion of Innovation* (1962; 2003), which was chosen to guide this research.

Chapter three contains an explanation and justification of the research methodology used, as well as a description of how the study was conducted. The appropriateness of the research design is also discussed. Chapter four outlines the study's findings and introduces the key themes that were derived from the research through the presentation of direct quotations, topics, and issues that were discovered during the course of the study. Chapter five elaborates on the findings presented in the previous chapter, detailing how the findings pertain to both the research questions posed within this case as well as the five steps within the innovation-decision process. This chapter also provides several practical recommendations. Chapter six provides the conclusions of this research, both for library integration of e-book technology as well as for future research, based on the current research.

Chapter 2: Literature Review

Recent literature has examined the ways that new technologies, including e-books, have changed the way we teach and learn. Boone and Higgins (2003) examined how digital publishing has changed education by providing readers with up to date information and indicated that the ideas supporting e-books are simple because, “Information in a digital format not only bypasses the expensive process of printing ink on paper and the subsequent logistics of distributing all that paper but also gives the information a new, dynamic life” (p. 133). Despite this claim, e-book integration and acceptance into academic libraries has been complex and e-books have yet to reach their full potential in many academic libraries. To further understand the process of e-book technology adoption in academic libraries, the literature on the subject needs to be examined.

This review will explore the developments and issues surrounding e-book technology adoption in academic libraries and examine how the current research can contribute to the state of knowledge. This will be accomplished by looking at each of the steps within the innovation-decision process, and reviewing the literature on the topic of e-book adoption in academic libraries as it pertains to each of the steps.

In order to capture the current state of research, literature searches¹ were restricted to peer-reviewed articles published in the last ten years. Additional articles were also discovered within the bibliographies of the aforementioned articles.

Diffusion of Innovations

¹ Keyword searches were performed: Education Resources Information Center (ERIC) database (e-book* OR electronic book* OR ebook* OR e book* OR digital book*); (electronic journal* OR e-journal* OR electronic resource* OR e-resource* OR virtual depositor* AND education); (information seeking OR literacy AND academic library* OR higher education OR further education). Library and Information Science Abstracts (LISA) database (e-book* OR electronic book* OR ebook* OR e book* OR digital book* AND education). CBCA Education database (e-book* OR electronic book* OR ebook* OR e book* OR digital book*).

As previously stated, Rogers' *Diffusion of Innovations* helped provide an understanding of the process of technology adoption and was used to frame the development of this case study. Rogers was motivated to write the first edition of the book, *Diffusion of Innovations*, in 1962 "to describe a general diffusion model and to argue for greater awareness among the various research traditions" (Rogers, 2003, p. 39). Rogers provided a definition of diffusion:

Diffusion is the process in which an innovation is communicated through certain channels over time among the members of a social system. It is a special type of communication, in that the messages are concerned with new ideas. *Communication* is a process in which participants create and share information with one another in order to reach a mutual understanding. (p. 5)

The communication described in Rogers' diffusion model is viewed as a two-way process. The messages expressed are about a new idea and "The newness means that some degree of uncertainty is involved in diffusion" (p. 6). Furthermore, Rogers used the term diffusion to encompass both the planned and spontaneous spread of ideas.

An innovation was defined by Rogers as, "an idea, practice, or object that is perceived as new by an individual or another unit of adoption" (p. 12). In this particular case, the e-book technology is the innovation that has been introduced by librarians within academic libraries; however, the students and faculty members are able to determine individually if they will use the technology for any given project.

Rogers also discussed the role of change agents within the diffusion of an innovation. These were individuals who were able to influence clients in their innovation-decision process (p. 27). They typically possessed a high level of expertise regarding the innovations

being introduced. Rogers also stated: “Change agents often use opinion leaders in a social system as their lieutenants in diffusion activities” (p. 27). In the diffusion of e-book technology in an academic library, the faculty members might be viewed as opinion leaders, due to their influence in student decision making.

The main aspect of Rogers’ theory that can be used to provide clarity in this case is the innovation-decision process. Rogers defined this process:

The *innovation-decision process* is the process through which an individual (or other decision-making unit) passes from gaining initial knowledge of an innovation, to forming an attitude toward the innovation, to making a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision. This process consists of a series of choices and actions over time through which an individual or a system evaluates a new idea and decides whether or not to incorporate the innovation into ongoing practice. (p. 168)

This process occurs in five stages: (1) knowledge, (2) persuasion, (3) decision, (4) implementation, and (5) confirmation (p. 20).² Each stage in this process has the potential to be a rejection point within the adoption of a new technology (p. 177). Individuals may not recognize when they are transitioning between these stages and there may not be sharp distinctions between them.

In the first stage, knowledge, the individual becomes aware of the innovation and gains an understanding of how the innovation functions. The individual may or may not be actively seeking information about the existence of the innovation when this stage occurs.

Rogers describes three types of knowledge pertaining to innovations (p. 73). First,

² In the 1962 version of *Diffusion of Innovations* Rogers categorized the 5 stages in the adoption process as: (1) awareness, (2) interest, (3) evaluation, (4) trial, and (5) adoption (p. 81).

awareness-knowledge is when an individual becomes aware of the existence of the innovation. Secondly, how-to knowledge consists of the information required for the individual to know how to properly use the innovation. Finally, principles-knowledge consists of the underlying information pertaining to how the innovation actually works.

Rogers also described the role of change agents in this first stage of the adoption process. Change agents play a role in disseminating information to the individuals about the innovation; however, Rogers noted that their focus might be misplaced in some cases:

Most change agents concentrate their efforts in creating awareness-knowledge (although this goal could often be achieved more efficiently by mass media channels). Change agents could perhaps play their most distinctive and important role in the innovation-decision process if they concentrated on how-to knowledge, which is probably most essential to clients in their trial of an innovation at the decision stage in the innovation-decision process. (p. 173)

In the second stage, persuasion, the individual responsible for the decision forms an attitude regarding the innovation, either favourable or unfavourable. The mental process involved in this stage differs from the previous stage: “Whereas the mental activity at the knowledge stage was mainly cognitive (or knowing), the main type of thinking at the persuasion stage is affective (or feeling)” (p. 175). At this stage, the individual becomes more psychologically involved with the innovation and the main outcome of the persuasion stage is the individual’s generation of an attitude toward the innovation. This persuasion was assumed by Rogers to “lead to a subsequent change in over behavior (that is, adoption or rejection) consistent with the individual’s attitude” (p. 176).

During the third, decision stage, the individual engages in actions that lead to their decision to either adopt or reject the innovation. In some cases individuals may try the new technology in a partial basis. This trial may lead to an adoption decision; as Rogers noted: “Most individuals who try an innovation then move to an adoption decision, if the innovation proves to have at least a certain degree of relative advantage” (p. 177). Trying out the innovation helps the individual deal with the uncertainty associated with the innovation’s potential consequences. The trial does not necessarily have to be carried out by the individual. For example, a peer is also able to try the innovation as a substitute for the individual’s trial. Rogers also noted that change agents might endeavor to accelerate the process by demonstrating the new idea within the social system.

Implementation is the fourth stage, and “Until the implementation stage, the innovation-decision process has been a strictly mental exercise of thinking and deciding” (p. 179). The implementation requires the individual to make a behavioural change. A certain level of uncertainty about the innovation may still exist, despite the fact that the individual has already used the technology. In this stage, the change agents are able to provide technical assistance regarding the innovation’s use. The implementation stage may also signify the conclusion of the innovation-decision process.

Within the fifth stage, confirmation, the individual reviews their innovation-decision. At this point, they may choose to reverse their decision and discontinue adoption. According to Rogers, discontinuance at this stage occurs more frequently “when the innovation is less compatible with the individual’s beliefs and past experiences” (p. 191).

The five stages of the innovation-decision process provide insight into technology adoption. Now that the key aspects of *Diffusion of Innovations* used in this study have been explained, the literature pertaining to each of the stages of e-book adoption will be explored.

Stage 1: Knowledge

The first stage in the innovation-decision process occurs when an individual becomes aware of the availability of e-books in their academic library and gains a basic understanding of how they function. Specifically, individuals must understand what e-books are and how they might be used. Many interpretations of the term e-book were found within the literature, although a broad definition of the term was used for this research. Ashcroft and Watts (2004) noted that defining what constitutes an e-book was difficult. E-books attempted to overcome limitations of print books by offering features such as hyperlinking, multimedia add-ons, digital annotating, bookmarking, and searching (Landoni et al., 2000), and the term ‘e-book’ has been used to maintain the paper book metaphor (Shiratuddin & Landoni, 2003). Cavanaugh (2002) suggested that an e-book had three components: the e-book file, software to read the file, and a hardware device to view it on. Further, Armstrong, Edwards, and Lonsdale (2002) noted: “There is no consensus over the difference (or unity) between an e-book and a digital book” (p. 217).

E-books could be accessed on many different types of devices (Blackwell, 2001). According to Long (2003), there were three basic hardware options for e-books: a dedicated hand-held device, a personal digital assistant (PDA), or a desktop or laptop computer. Dedicated devices (or e-book readers) were created specifically to display e-books and have been released by many companies. A list of readers is not provided as part of this research because as Blackwell stated: “any list of them is outdated the moment it’s completed” (p.

37). It is also difficult to assess how many users owned dedicated reading devices because several of the popular readers, such as Amazon's Kindle and the Sony Reader have not released sales information (Cuddy, 2008). Regardless of the number of readers available to consumers, readers did not gain immediate success. Landoni and Hanlon (2007) examined fiction e-books in public libraries through a user study of two reading groups and found that users did not want to move to the e-format. Further, they stated that when dedicated readers first emerged "in the late 1990s, the demise of traditional paper-based collections was considered an imminent inevitability by many observers. Indeed, despite the hyperbole surrounding electronic publishing, there is at present no real threat to paper books" (p. 600). Landoni and Hanlon acknowledged the possibility that the technology itself may be the reason that e-books have not been adopted more widely. They also found that "Many of the group members referred to traditional books on an emotional level" (p. 606). Martinez-Estrada and Conaway (2012) examined tablet devices as a classroom tool and found that tablet devices increased student engagement in the learning process. Further, Wexelbaum and Miltenoff (2012) explained that e-reader use was increasing, despite the fact that libraries were hesitant to invest in this type of hardware.

Key factors discussed in the literature pertaining to the quality of e-book readers included: method of obtaining files, size, weight, fragility, method of page advancement, screen type, and other functions offered by the reader such as search, tables of contents, dictionaries, and thesauri (Godwin-Jones, 2007; Wilson et al., 2002). In a comparison of two dedicated e-book readers, *Rocket eBook* and *Glassbook*, Dearnley and McKnight (2001) found that users liked portability and the ability to annotate, underline, or highlight text, but there was little enthusiasm for either reader. The participants disliked screen reading and

indicated that significant improvements would have to be made to e-book readers to become as natural for users as print books. Some e-book readers have improved to address these issues. Terry (2001) discussed e-book technology such as electronic paper (e-paper)³ and electronic ink (e-ink)⁴. These technologies sought to match the usability of conventional ink (which is often expected by users when they approach e-books). Terry explained, “Ink on paper has been around for so long that it is often taken for granted. It provides the de facto standard against which other display options are compared; yet its merits are rarely directly praised or even discussed” (p. 377). Devices that used these technologies were easier to read, helped alleviate eye fatigue, and used less energy, which increased battery life (Nelson, 2008; Terry, 2001). Despite advances, the cost of dedicated readers has been prohibitive for many users (Godwin-Jones, 2007). For this reason, some have utilized personal computers or other mobile devices such as iPods, iPads, MP3 Players, personal digital assistants (PDAs), laptops, and smart phones to read e-books (Corbeil & Valdes-Corbeil, 2007; Godwin-Jones, 2007; Scanlon, 2005). Godwin-Jones (2003) proposed that the large screen of the tablet PC could renew interest in e-books, though Larson (2008) warned that reading e-books on a non-dedicated device could lead to additional distractions. Overall, the literature demonstrated that e-books could be read on a plethora of devices and there was no consensus regarding the best way to access e-books.

The literature also explored methods of acquiring e-books, although the Internet was the most common (Ashcroft & Watts, 2004). The oldest provider of e-books, Project Gutenberg offered over 40,000 free e-books online as of July 2012 (Project Gutenberg,

³ According to Terry (2001), “E-paper and electronic paper refer to particular implementations where the media is a flexible sheet, hence the paper analogy” (p. 377).

⁴ According to Terry (2001), “Electronic ink refers to the field of technologies, which can display persistent text and graphics and where the text and graphics are imprinted via the use of electronic means. Persistence refers to a state that does not change” (p. 376).

2012). Other providers also made e-books available, either for free or for a charge. Nelson (2008) indicated that the size of the e-book market has been elusive, mainly due to the difficulty in obtaining accurate sales information. Although the actual size of the e-book market was unknown, e-books challenged the centuries-old business model of publishing (Rao, 2003). While many publishers were attracted to e-books for the purposes of cost-cutting (Fister, 2001), e-books bypassed the requirement for printing and could be offered for free or for a minimal charge over the Internet. According to Dunlap (2008), Open Access materials were increasingly utilized in academic life, often in response to the increasing costs of journals. Further, Vest (2006) examined MIT OpenCourseWare, a web-based publishing venture that put material online and stated that concerns relating to intellectual property rights, quality control, cost, and bandwidth would all have to be addressed before open-source materials would reach their full potential in education.

While some e-books were available free of charge, many had to be purchased by libraries or individuals. Unlike print, e-books could become part of the collection instantly when purchased, decreasing the need for additional library services, such as interlibrary loans (Billings, 2000). The e-book price was determined by the publisher, but was often the same as the hardcopy book (Connaway, 2001). Library consortia could also increase the number of accessible e-book titles (Ashcroft & Watts, 2004; Harris, 2004; Park 2007).

The business and access models used were determined by each library individually (Tripathi & Jeevan, 2008; Wilkins, 2007). Armstrong and Lonsdale (2005) examined issues of concern regarding e-book procurement. Textbooks were seen as a priority for selection in all disciplines and course reading lists, usage, and multiple paper copies were also described as influential. Further, Armstrong and Lonsdale stated: “the lack of systematic bibliographic

control is a major problem for academic librarians and has a negative influence upon selection” (p. 41). They also found a general dislike of e-book bundling packages among librarians, as well as when a title was available from different sources, under different licensing and pricing options. Armstrong and Lonsdale found that librarians were concerned about the lack of awareness of e-resources among students and recognized that academic staff had a significant role in promoting and publicising e-books, which could only occur with adequate staff training. It could be even more difficult for librarians to determine which e-books to purchase when collections development initiatives were not done collaboratively with academic departments (Ashcroft & Watts, 2004). Though collaboration would be beneficial to identify useful resources, it is not always possible.

The literature indicated that libraries must understand the needs of their users for e-books to be successfully adopted (Billings, 2000; Hughes, 2001). Despite this, Bielema, Crocker, Miller, Reynolds-Moehrle, and Shaw (2005) stated that reference librarians may not have spent sufficient time with students to understand their needs: “As reference librarians, most contact with students is fleeting, lasting generally less than 10 minutes in a semester, and very rarely more than 1 hour” (p. 340). Lonsdale and Armstrong (2001) sought to understand issues of e-book acceptance in academic libraries through survey results and found that although students perceived academic staff as the first point of contact, the guidance they received was frequently unstructured and students may have remained unaware of the resources offered. Camacho and Spackman (2011) also said that “e-book vendors provide usage data that can assist librarians in building a collection that truly reflects what faculty and students need” (p. 43).

Individuals could also gain knowledge of e-books by searching in the library catalogues. Jantz (2001) stated that increased use of digital material may alter future bibliographic structures; however, research demonstrated that bibliographic records should be integrated into the public access catalogue for e-books to be successfully adopted (Belanger, 2007; Blackwell, 2001; Connaway, 2001; Diez & Bravo, 2009). Although Belanger (2007) found “widespread consensus that bibliographic records for e-books should be integrated into library OPACs [online public access catalogues] in order to assist users in resource discovery and access” (p. 204), many libraries had not followed through. Belanger reviewed 30 academic libraries and found that only approximately half clearly instructed users to access e-books through the library catalogue. Belanger also stated that the option of limiting search results to e-resources could assist users in finding relevant e-books. Additionally, Abdullah and Gibb (2009) stated that cataloguing specific features of e-books such as a back-of-the-book index and tables of contents assisted users with finding appropriate e-books.

While some e-book providers delivered e-books through a library, others marketed directly to students. In 2001, Questia began posing a threat to traditional libraries by marketing e-books to students heavily and directly (Armstrong et al., 2002; Fister, 2001; Gibbons, 2001). According to Gibbons, Questia benefited from undergraduate students using research materials for the sole purpose of writing essays. To this end, Questia offered tools such as copy and paste capabilities and bibliography generators. Gibbons also noted that direct marketing to students set Questia apart from libraries: “Unfortunately, too many libraries are complacent, believing that the value of their collections and services is intrinsic and obvious to all their patrons” (p. 366). Gibbons analysed Questia’s collection and found

that it was haphazard and uneven compared to most university libraries and said it would be difficult for students to write a solid paper using Questa exclusively. Similarly, in an examination of searches in Questa over a three-month period, Hughes and Buchanan (2001) determined queries were academic, but used potentially ineffective terminology. The study did not report the number of ineffective library catalogue searches, but the findings indicated a need to support novice researchers.

The literature also demonstrated more generally that librarians played a key role in facilitating e-book integration into academic libraries and that the adoption of e-books have changed their profession. As Valenza (2007) shared: “the changes occurring between 1976 and 1988, when the personal computer and automation were becoming ubiquitous in libraries, had nothing on the changes that we have seen in the last 2 years” (p. 18). Key areas of librarianship that have been altered by e-books discussed in the literature included: selection, approval plans, acquisition, cataloging, circulation, digital preservation, and the relationship between the classroom and the library (Armstrong & Lonsdale, 2005; Jantz, 2001). Like other e-resources, e-books can be difficult to administer due to their numerous suppliers, ordering methods, and regulations (Wilkins, 2007). Wilkins discussed e-book management at the University of Derby library. The school initiated their e-book collection with NetLibrary because the offerings were the most similar to print books. Usage statistics were examined to determine which titles to order or cancel and all titles were added to the catalogue to maximize access. Overall, Wilkins found a steady increase in e-book usage over time and noted that access from the catalogue was beneficial. Further, “Promotion by academic staff has also been instrumental in improving take-up and now that e-books feature on reading lists we feel that they are truly ‘on board’” (p. 252).

Librarians wanted to provide users with greater accessibility to material in an e-book format, just as they had with print books (Long, 2003). Consequently, librarians had to understand the legal obligations of e-books, which differed from print books (Billings, 2000). Intellectual property issues were even more challenging for books produced before e-book publication rights were part of typical publishing contracts (Nelson, 2008).

E-books offered many benefits to libraries, including round-the-clock access, simultaneous multiple-user access, full-text search ability, and no requirement for additional shelving (Tripathi & Jeevan, 2008). Armstrong et al. (2002) described the benefits to libraries, as viewed by librarians:

A number of positive administrative and management advantages, and no disadvantages, were voiced. It was felt that e-books would eliminate handling and provide instant issue/return and at the same time would free up staff time from shelving and ease pressures on physical space. As no physical storage space is needed, there is no need to re-shelve. If content becomes out of date, it can be removed easily but there would also be less need to edit stock and no need to classify. An e-book cannot be damaged: the problems of vandalism, missing, and hidden books would be solved. (p. 224)

Despite the general support from librarians, e-book integration may have been more difficult in practice due to budgetary constraints. According to Dunlap (2008), many academic libraries have had to cope with declining budgets, making decisions about the collections even more important.

The literature also indicated that faculty members and instructors played a role in the adoption of e-book technology into academic libraries. As Armstrong et al. (2002) noted:

“Even librarians who are enthusiastic about the medium may not be able to allocate funding as book budgets are frequently controlled or heavily influenced by faculty” (p. 226). In a study examining technology adoption by academics and professionals, Keengwe, Kidd, and Kyei-Blankson (2009) found that most would be more likely to use the technology if there was departmental and peer support. Some participants noted that adopting new technology was stressful and “the level of complexity was heightened when individuals did not see the ease of use and the perceived usefulness of technology as well as when their organization failed to provide adequate support” (p. 26). This may mean that librarians would have to reach out to faculty members to keep them informed about resource development.

Some instructors have used e-books to reduce costs in their courses. Buczynski (2007) examined professors who integrated freely-available material within their coursework to be more economical. Although e-textbooks may have been less expensive, “the downside of this strategy is that many subscribed resources suffer from the well-known here-today-gone-tomorrow plague” (p. 176). Library holdings may change over time in response to changing budgets and subscriptions to e-resources can be easily cancelled.

This section has discussed some of the issues raised in the literature that are associated with the knowledge step of the innovation-decision process, as described by Rogers. Individuals needed to learn what an e-book was and how they could access and use them effectively in this stage. Furthermore, the librarians and faculty members played a role in providing the users with appropriate e-books, as well as informing them of the provision of e-books and how to use them.

Stage 2: Persuasion

After the individual becomes aware of the e-books, they enter the second stage of the innovation-decision process: persuasion. In this stage, the individual forms either a favourable or unfavourable attitude toward the innovation. In the case of e-books this attitude formation may be influenced by the individual's previously formed opinion of print books. Part of the reason e-books have not been universally adopted is because users are already accustomed to print books. E-books may have overcome some limitations of print (Landoni et al., 2000); however, the degree to which e-books mirror print books has been varied. E-books originally created in the digital format had the opportunity to take advantage of additional features not available in print. Wilson, Landoni, and Gibb (2002) explained that the book metaphor (containing aspects such as a cover, a way to provide a sense of place within the book, tables of contents, clear images, search tools, cross-referencing, and content clues) was imperative for readers as they approached electronic texts with expectations inherited from experiences with paper books. Others suggested that e-books should be more than a book in electronic format and they should provide users with additional benefits (Hellwig, Monroe, & Jacobs, 2000; Polding, Nunes, & Kingston, 2008; Rowhani & Sedig, 2005). For example, Hellwig, Monroe, and Jacobs (2000) provided characteristics for teachers of mathematics to evaluate e-books for students. They noted that the key issue is providing students with opportunities to draw meaningful connections between the classroom and external life. The format of e-books allows for supplementary features to be provided which may or may not be included in each e-book.

Berg, Hoffmann, and Dawson (2010) examined undergraduate science students and found that the students approached print books more linearly than e-books, which seemed to be more successful. They stated: "The apparent disconnect between participants' perceptions

of print books and e-books seems to have contributed to the lack of potentially useful information retrieval methods not being transferred between the two formats” (p. 524).

Users need to be informed of the services and resources they are offered and how to use them effectively (Ashcroft & Watts, 2004, p. 290). Abdullah and Gibb (2008b) gave students an opportunity to interact with e-books before rating their preferences and while students felt they could interact with e-books easily, they also believed that e-books should have been promoted more strongly. Promotion of e-books and other electronic resources should be customized and targeted to individual user groups (Appleton, 2005). Diez and Bravo (2009) mirrored this sentiment and stated: “Librarians have the responsibility to aid their users in understanding the growing complexity of the information market and the increasing range of resources available for research” (p. 94).

E-books could be promoted directly to students during information literacy training, but faculty members could also increase the adoption of e-books. Wilkins (2007) stated e-book use increased not only by offering seamless access from the catalogue, but also through their promotion on reading lists. Rojeski (2012) presented results from a pilot program in which course reserve books for a class were purchased in e-book format and linked to from the online course management system. Surveys, a focus group, and usage statistics were examined and the study found that use of the e-book format for reserve material was higher than in print. Rojeski also noted that using e-books for course reserves required greater collaboration between librarians and faculty members to decide how to connect the students to the material. The take-up of e-books could also be increased through partnerships between the library and a department (Jantz & Bell, 2002) or with publishers (Bhat, Paulsen, Dunn & Van Epps, 2006).

Diez and Bravo (2009) stated that librarians had to train users, including instructors, to use e-books effectively. Ashcroft and Watts (2004) also put forth that e-book endorsement could begin with faculty: “In the case of academic libraries, it is vital to promote awareness of new electronic resources amongst academic staff, which will in turn pass on that awareness to students” (p. 290). Albitz (2007) examined information literacy and critical thinking in higher education and further described the importance of faculty support:

Because librarians and teaching faculty are not effectively communicating, suspicion and frustration result. Librarians are frustrated that they are not invited into the classroom to teach “information literacy” skills, and teaching faculty are suspicious of librarian’s motives for wanting to take over valuable class time. (p. 98)

Due to the fact that students could access library catalogues online, they no longer relied on physical libraries to access resources. Albitz examined library and education literature and found: “Whereas libraries define the skill set needed to become a life-long learner as information literacy, teaching faculty members are more likely to define a similar set as critical thinking skills” (p. 107). Albitz found two disconnects in the objective of graduating information literate students—the first was the incongruent definitions of the concept and the second was the role of librarians in teaching information literacy. It was important to recognize that the relationship between librarians and faculty within an institution could influence the innovation-decision process.

Individuals might also approach the persuasion stage with their perception of a similar technology: e-journals. Similar to e-books, many libraries added e-journals to their collections without gaining immediate success (Appleton, 2005). Baker (2008) examined digital budgets for libraries and stated that e-resource use was growing and indicated that the

distinction between e-books and e-journals would become less apparent over time. Although Blackwell (2001) suggested that e-book integration could learn from the path e-journals had already followed, Herson, Hopper, Leach, Saunders, and Zhang (2007) found that students preferred e-journals to e-books. In a focus group study of e-journals, Serotkin, Fitzgerald, and Balough (2005) demonstrated that participants preferred e-journals to print journals because they found it faster and easier to locate information. Students desired an introduction as well as additional training, printed instructions and yearly updates in order to feel capable of using the new e-journals and other resources to conduct research. They also found that instructors played a role in the promotion of e-journals; students admitted that they were not as likely to seek out specific journals unless instructed to do so by their professors.

Specific groups of students may approach e-books with different needs, which might come into consideration during the persuasion stage. For example, a key concern with e-books is that they require a device to enable access. According to Ashcroft and Watts (2004), e-books could marginalize users who do not have access to a reading device. Despite this, e-books could also be beneficial when accommodated to help students read more effectively (Cavanaugh, 2002; Rhodes & Milby, 2007). E-books that offered features such as text-to-speech, varied text size, additional reference data, increased portability, note taking, and highlighting were described as beneficial to individuals with disabilities (Boone & Higgins, 2003; Cavanaugh, 2002). Other studies indicated that international students had distinct information needs (Liu & Winn, 2009; Yi, 2007).

Gender has been a key consideration in many studies examining technology, including those on e-books. Mikk and Luik (2005) examined e-book use among students

between 15 and 16 years of age to determine which types of e-textbooks would be beneficial. They found that boys were able to produce better results than girls after learning from e-textbooks. To facilitate girls' learning from e-books, they suggested that e-books with simple navigation and design be used, in an environment that encourages female computer use. Despite this, Ismail and Zainab (2005) examined e-book use among undergraduates and found “no significant relationship between the total use or non-use of e-books and gender even though in general more male students (44.7%) used e-books than female students (34.8%)” (p. 8). Different search behaviour based on gender has also been explored. Rowlands and Nicholas (2008) examined how students find books by grouping students into clusters based on demographic characteristics. Student reliance on the library for their information needs varied and gender was a key factor in search behavior differences. No consensus regarding gender and technology use was found in the reviewed literature, and the full debate on this issue cannot be presented here, though it is important to recognize the potential for gender differences to impact individual's innovation-decision process with regard to e-books.

A significant body of research regarding the influence of e-books on children was also discovered. Studies have indicated that children are at ease with and benefit from e-book technology (Beard & Dale, 2008; de Jong & Bus, 2004; Grant, 2004; Ip, Chu, & Sit, 2008; Korat & Shamir, 2007; Korat & Shamir, 2008; Shamir, 2009; Shamir & Korat, 2007; Shamir, Korat, & Barbi, 2008; Shiratuddin & Landoni, 2003). Clyde (2005) examined e-books from a school library perspective and noted that though there was some concern that children would have difficulty initially adapting to e-books, students could learn the new technology similar to how they learn to read printed books. There were also websites

designed to assist children with interacting with e-books (Antifaiff, 2005). As the process of e-book adoption continues in academic libraries, an increasing proportion of the students reaching university will have previously had access to e-books, which may lead to an increase in their use.

Literature associated with the persuasion stage of the innovation-decision process was discussed in this section. The key issues identified that may factor into the development of a positive or negative attitude toward e-books, such as their experience with print books, e-journals, and benefits to specific user groups were discussed above.

Stages 3 and 4: Decision and Implementation

For the purpose of this chapter, the third and fourth stages of the innovation-decision process will be discussed concurrently. In the third stage, decision, the individual engages in actions that lead to their decision to adopt or reject the innovation. They, or a peer, may try the technology on a partial basis in this stage. After a decision is made, the individual may or may not make a behavioural change, if he or she has decided to adopt the technology. The majority of the literature in this area was comprised of user studies of e-books in libraries, which detailed both the decision to use the e-book and, in some cases, e-book adoption.

User studies have demonstrated that the benefits of an e-book were subjective and depended largely on the individual's opinion. Rao (2003) explored the state of e-books and provided an overview of their benefits and disadvantages. According to Rao, advantages of e-books included method of publication, economic advantage, increasing capabilities of hardware, business applications, convenience, environmental friendliness, and ability to improve literacy and education. Other aspects such as customization, print-on-demand, updates to reduce outdated information, the elimination of heavy bags, and equal access

between on and off campus students were indicated by others as being particularly beneficial to the academic community (Poftak, 2001; Rao, 2004). Dunlap (2008) examined the challenge of integrating e-books into library budgets and stated that digital documents also have higher-level benefits:

Never before has scholarly content been made so accessible, transportable and malleable. Digital content is capable of being rapidly integrated into derivative forms, formulated into building blocks for research and study, and assimilated into more complex frameworks and online learning systems. (p. 135)

E-books have also provided the opportunity for information to be updated, unlike printed books that can become outdated and obsolete over time (Ashcroft & Watts, 2004; Steding, 2004).

E-books' disadvantages were also explored. Rao (2003) linked the disadvantages of e-books to two root causes: the shortcomings of e-book technology and incongruence with user expectations. According to Rao, the shortcomings of e-book technology were linked to issues of cost, durability, screen resolution, technological change, availability of titles, compatibility, bibliographic data, printing, and legal issues. Users approached e-books with experience gained through paper book use. The disadvantages of converting to e-books included issues such as finding an appropriate business model, insuring intellectual property rights, assuring speedy and reliable access, provision, and persuading academics to recommend them to students. Nelson (2008) also explained concerns such as the lack of a critical mass of content, intellectual property issues, and cultural resistance (i.e. users accustomed to using print may feel uncomfortable switching to electronic devices) as potential hindrances to e-book adoption.

E-book use might have also depended on the type of resource. Lamothe (2012) compared online use of e-reference and e-monograph collections between 2002 and 2010 and found that e-reference use was high throughout the period studied, but e-monographs were used less frequently. Lamothe also found that in both collections, “the larger the collection, the greater the usage. There is also a very strong relationship between searches and viewings, meaning that the more searches performed, the more full-text content will be viewed” (p. 114).

Appleton (2004) examined a focus group of midwifery students and found they appreciated certain features of e-books such as keyword searching; however, “their instinctive reactions were that e-books were not as effective as a learning material as printed books or even electronic journals” (p. 251). Appleton mainly attributed this to the fact that the printed book remained ideal for many readers, though there was still a demand for full text electronic documents. Appleton also stated that although the group regarded e-books as an alternative to print, they should actually be viewed as completely different resources. The students mainly accessed e-books in sections rather than reading them linearly. Books that were typically reviewed in short segments such as texts, manuals, and reference books were more suitable in electronic format as “The technical limitations and inconveniences of e-books are tolerable when you are only reading a few pages” (Appleton, 2004, p. 250).

Abdullah and Gibb (2008a) surveyed students and found that e-book awareness and use were lower than anticipated, but students desired to learn more about e-books. Over half were unaware that e-books were available from the library. Those who were aware of the availability of e-books discovered them from the following sources: the library website (54 percent), a lecturer (24 percent) other sources (14 percent) or from a librarian (8 percent) (p.

597). Among the students who had used e-books, over half indicated that they had used three or fewer, textbooks were the most commonly used type of book, and reading on a screen was the most popular reading method. Abdullah and Gibb also examined the reasons students had used or had not used e-books. The main reasons for using e-books were: they were freely available in the library, there was no equivalent print book available, and they had features not available in print books. Main reasons for not using e-books were: the lack of awareness of e-book availability, a preference for print books, and dislike for reading on screen. Abdullah and Gibb stated that the low level of e-book use was contributed to by the lack of widespread advertisement.

Hernon et al. (2007) examined undergraduate students and found they were largely unaware of keyword searching, both in looking for and within e-books. Students liked e-books for the benefits of an alternative copy, convenience, reduction of course material purchases and the resulting cost savings, currency, and efficiency. Most students trusted that the resources on the library's homepage were reliable and trustworthy. Printing was one way students minimized screen reading and students preferred e-journals to e-books because of their brevity. Most students did not think e-books should be read "similar to a print book - something to be read from cover to cover" (p. 7).

Hoseth and McLure (2012) used focus groups of graduate students and instructors to explore attitudes towards e-books. The participants in this study preferred print; however, they also recognized a need to adapt to change and potentially transition to the e-book format. Armatas, Holt, and Rice (2003) reviewed first year psychology students' reported use and perceived value of online research materials and found "students overwhelmingly endorsed print material" (p. 150). While both on- and off-campus students preferred print,

off-campus students were more supportive of the online medium due to the variety of learning materials provided.

McClelland and Hawkins (2006) examined e-books use in higher education in the UK using case studies and a questionnaire. They found that users enjoyed some features of e-books and although students liked resources to be up to date, costs were a barrier. McClelland and Hawkins explained: “users want some features of paper books to be preserved in the electronic medium, while also preferring electronic text to be written in a scannable style” (2006, p. 79). McClelland and Hawkins also noted that students who had used e-books their whole lives would soon be reaching higher education: “For those learners today, and in the future, who grow up reading from a screen and for whom it is second nature, the print book may one day be something of a relic, quaint and charming and entirely unpractical” (p. 80).

Blackwell (2001) stated that a primary reason students had not adopted e-books was the price; however, Shiratuddin (2005) found evidence to the contrary. In an examination of a case where an e-book that was cheaper than a print version, Shiratuddin found that students still preferred to print the material because the readers were difficult to use in class. Morton, Foreman, Goede, Bezzant, and Albertine (2007) also found, through qualitative questionnaires taken by medical students, that students preferred using printed material during lectures, even if they had access to both print and electronic. The students saw the electronic copy as an effective way to distribute course content and a good self-study tool. Key reasons students did not like the electronic format were because they did not feel natural or because they did not own laptop computers. Morton et al., (2007) suggested that future students may gradually become accustomed to using computers during lectures.

At Auburn University Montgomery Library, Bailey (2006) examined e-book use between 2000 and 2004 and found that e-book use increased between three- and fivefold while use of the print collection decreased during that period. Data were taken from netLibrary use reports and bibliographic records were added to the public access catalogue from their integration. Bailey acknowledged that this growth was “clearly not sustainable” but stated that additional electronic collection development could be beneficial (2006, p. 54). Bailey also discovered that while there was an increase in e-book use in all subjects, some subjects grew faster than others. Bailey suggested that librarians should determine a cost-effective approach to providing resources while allowing developments in both formats to grow, based on use. Ahmad and Brogan (2012) examined academic and student use of e-books using log analysis. They found that “more than 90% of titles were never accessed/browsed and 95% were never read” (p. 209). A small proportion of the e-book titles had the greatest use (in terms of minutes), and a small group of users were responsible for most of the e-book use.

Levine-Clark (2006) examined survey results from the University of Denver and found that awareness of library provision of e-books varied by discipline. Awareness was highest among undergraduate students, followed by graduate students, then faculty. Despite varied awareness, approximately half of the respondents in each group indicated that they had used an e-book. Print books were preferred due to the ergonomics of online reading, though respondents indicated that they saw value in the convenience and search features of e-books. They printed or read the information on the screen, depending on the amount to be read. Levine-Clark also stated: “The fact that most respondents do not print out e-book content contradicts research that has been conducted on the use of electronic journals” (p.

294). There was some degree of confusion among students regarding the types of electronic resources and this “may mean that for some users the online/print division is more important than the traditional book/journal distinction” (p. 291).

Students and faculty were surveyed by Anuradha and Usha (2006) and the slow uptake of e-books was attributed to differing formats that were “often incompatible and non-interoperable” (p. 49). Respondents mainly used reference and technical e-books and few printed the material. Users appreciated instant access and search tools offered by e-books and preferred the word/phrase search to other functions offered by e-books such as annotating, bookmarking, or text copying for quotations. Dislike for e-books was contributed to by issues such as the incompatibility between different suppliers, lack of user-friendly interfaces, problems associated with usernames and passwords, and the variety of devices. Anuradha and Usha explained that the higher proportion of students, compared to staff that answered the questionnaire could indicate that younger respondents were more likely to use the technology.

Hsu and Chang (2008) examined search behavior and also indicated that digital library use was increasing. They observed more frequent use of journal and magazine articles than e-books in digital libraries. Varied e-book use (Connaway, 2001; Kemp & Jones, 2007) and Internet use (Sewlyn, 2008) among disciplines was also found in other research. Kemp and Jones (2007) examined two linked studies at one UK university and found that discipline significantly affected the level of use of digital resources and that strategies to develop these resources should take this under consideration.

The preceding section has examined literature pertaining to the decision and implementation stages of the innovation-decision process. During the decision stage, the

individuals chose whether to use the e-books. Rogers noted that many individuals would try the innovation provided that it had at least a certain degree of relative advantage. The implementation stage then took place for some individuals, and the perceived advantages and disadvantages of e-books found within the literature as the result of their implementation decisions were provided.

Stage 5: Confirmation

Although the implementation stage of the innovation-decision process may signal the end of this decision process, the fifth stage, confirmation may also occur. In the confirmation stage the individual analyzes their decision and may choose to discontinue adoption. In this specific type of technology adoption, users have many opportunities to determine whether or not to use the innovation. Students typically use more than one information source for each project and require many sources throughout their time in university. E-books can be used in addition to print books in any given project. One of the key methods of helping students determine which resources they should use at any given opportunity is information literacy training. Due to the role it plays in helping students develop the skills to evaluate the types of resources they use, the literature pertaining to information literacy training will be discussed in this section.

E-books could potentially assist students in locating information; however, “It is clear that advances in technology will not automatically lead to learning enhancement” (Cotton & Gresty, 2006, p. 46). Before the Internet, scholarly research was limited to library hard-copy holdings; however, technological advances have increased the amount of material that could be reviewed (Helms-Park, Radia, and Stapleton et al., 2007). For example, the Internet has facilitated the potential for primary and secondary source materials to be used

(Taylor & Duran, 2006; Vess, 2004). E-resources may have also facilitated plagiarism (Taylor & Duran, 2006). Grafstein (2007) discussed issues surrounding information literacy and the information explosion found that earlier literature within the realm of higher education demonstrated that similar educational goals had existed previously. Grafstein stated: “the conceptual basis for information literacy predates and is thus largely independent of the new information environment” (p. 58). Further, students understood the value of using computers and the Internet for research, but needed instruction on source evaluation (Mulligan, 2001).

Wynne (2004) examined approaches of evaluation for e-books and focus groups revealed that the digital environment has increased the number of resources that could be accessed; however, quality assurance remained problematic. Further, Wynne stated that freely available electronic texts on the web were difficult to evaluate, “And even the places which we know can be trusted as repositories of printed books, such as the university library, when they operate in the virtual world they are not on such firm ground” (p. 198).

Conversely, Steding (2004) examined how to increase e-resource use in the humanities and stated that information from reliable sources such as renowned publishers or professional libraries should be considered trustworthy and “We must remember that paper is neither a guarantee nor a requirement for the academic value of scholarly data” (p. 126).

McClure and Clink (2009) examined 100 essays as well as focus groups of students and teachers. Though students listed quality sources in their works cited pages, they often relied on a single, less authoritative source through the text of their essays. McClure and Clink also found that students may be unsettled by the library:

It is also clear from teacher and student responses in the study that the library is seen as an intimidating and inconvenient place, especially and interestingly in its primary purpose—supporting student research and often assisting students in the identification, location, and evaluation of sources. (p. 130)

McClure and Clink found that teachers struggled with teaching concepts such as timeliness, authority, and bias of sources to their students. It was also mentioned in the literature that it was essential that librarians considered the differing levels of user confidence (Ashcroft & Watts, 2004) and attitudes towards computers (Armatas et al., 2003) when developing strategies to integrate new materials.

Students also found evaluating sources difficult. Mittermeyer (2005) examined mail questionnaire results from students entering university in Quebec and found that students demonstrated problems pertaining to library catalogue use as well as identifying characteristics of scholarly journals. Mittermeyer stated, “one cannot assume that even the most fundamental and long standing information tools (e.g. the library catalogue and the scholarly journal) are known to incoming undergraduates” (p. 224). This was echoed by Gandhi (2004):

However, it is often taken for granted that students know how to conduct library research. This is certainly not the case. A majority of the students have never learned how to do library research and do not possess adequate library research skills. (p. 16)

Although students may not have had adequate information literacy skills, many frequently used the Internet to locate resources. Selwyn (2008) examined a self-report questionnaire from a sample of undergraduate students in the UK and found that the respondents were “a generally internet-rich population, with academic information searching forming a prominent

part of their generally online engagement” (p. 20). Despite this, there were still a few students who relied on a shared computer or did not have the competence or confidence to use the Internet for research. Selwyn found that female students were significantly more likely to use the Internet to find academic information than males. There was also a difference found among subject areas: “students from medicine, social studies, law and business all report[ed] higher levels of educational internet use than their counterparts in creative arts, architecture/planning and the humanities” (Selwyn, 2008, p. 21). Similarly, Rollins, Hutchings, Ursula, Goldsmith, and Fonseca (2009) examined surveys conducted in 2002, 2006, and 2008 by members of the Louisiana Academic Library Information Network Consortium (LALINC) and indicated that information literacy should be more than technology focused, “because so many students are already technology natives when they enter college” (p. 454).

Google and other Internet search engines have provided unprecedented access to e-books and have been used widely for research (Haglund & Olsson, 2008; Helms-Park et al., 2007; Keller, 2009). Google search results allowed users to view title pages and tables of contents to help readers determine if a book was of interest (Keller, 2009). Google could be helpful, though some instructors have questioned its quality and credibility, especially if students do not critically assess the results (Helms-Park et al., 2007). Helms-Park et al. examined the quality of sources included in annotated bibliographies created by 27 students using Google, Google Scholar, and traditional libraries. While Google Scholar and the university catalogue mainly retrieved academic sources, Google predominantly linked to government, newsgroup, and advocacy websites. The academic nature of the results from Google Scholar and the library was a key strength of these services; however, they noted that

students should be instructed how to assess all types of sources and instructors should be up-to-date on the information search behaviour of their students.

Markland (2006) also examined Google and Google Scholar to determine their efficiency at retrieving items from 26 Institutional Repositories in the UK and found that users may have come across the repository material, but needed a degree of skill to find the best version. Neither Google nor Google Scholar offered the ability to search for only peer-reviewed, published, full-text journal articles. Buschman and Warner (2005) also noted that it was important to remember the unregulated, commercial nature of the Internet and that search engine results can be skewed. For these reasons, users need to be provided with some form of information literacy training.

Information literacy training methods were also discussed in the literature. Lebbin (2005) used focus groups to examine student perceptions of an information literacy course. The course allowed students to apply their knowledge immediately, which led to an improved understanding of information literacy as well as contributed to their comfort and confidence in the university library. Macklin and Fosmire (2005) examined courses that integrated information pertaining to literacy skill development, which “helps individuals recognize when information is needed and maintain the ability to locate, evaluate, and use needed information effectively” (p. 44). Librarians noticed that most students initiated research with the Internet and search engines, even if they were aware of scholarly resources offered by the library. The students believed search engines were faster and more effective at finding information than the catalogue or indexes and unanimously stated that finding information on-demand was more important than relevance and credibility. The faculty

reported an improvement in final projects and papers following the integration of information literacy techniques into course learning.

In a study by Dolowitz (2007), staff believed that students came to higher education with a sufficient understanding of how to use online sources and that training was not required to use electronic documents for academic purposes. Despite this belief, students were unable to distinguish high quality sources from lower quality sources, often relied on Google, and “a more surprising finding was that 50% also reported having difficulty using the library” (p. 183). This signified that students need be provided with training on how to assess all types of resources.

Wilkes and Gurney (2009) examined perceptions of information literacy by first year applied science students. Using surveys at the beginning and end of a semester, they found the Internet followed by a textbook, were the most preferred information sources among students. While the students were confident using technology; they may not have realized that this does not necessarily mean that they were information literate. The study found students’ perceptions of their skill level were incongruent with the level of information literacy indicated by their assignments and more emphasis should be put on teaching first year students how to read and critically analyze journal articles.

Saunders (2009) surveyed a panel of experts on the future of information literacy. Most were optimistic and indicated that librarians would continue be influential and also predicted that the future would bring increased collaboration with faculty. The participants indicated that while Google could be improved to meet students’ needs, it “could not replace the need for the higher-order thinking skills necessary to evaluate, analyze, and synthesize information” (Saunders, 2009, p. 105). Information literacy programs could be expensive,

time intensive, and were frequently offered in an informal manner (Saunders). Key methods of improving information literacy presented in the literature were: integration into course material (Macklin & Fosmire, 2005), courses that allow students to immediately apply learning (Lebbin, 2005), multiple instruction sessions (Gandhi, 2004; Stevens & Campbell, 2008), and courses that are the result of collaboration between faculty and librarians (Mackey & Jacobson, 2005). Despite the abovementioned support for information literacy initiatives, Buschman and Warner (2005) warned that some of the research may be interpreted too optimistically, ignoring conflicting data within the research and presenting a false confidence in the research abilities of students.

Part of the difficulty with providing information literacy training for electronic resources was that users may feel this is unnecessary. Research indicated that students believed they knew how to find information because they were technologically adept (Wilkes & Gurney, 2009), staff believed students understood how to use online sources adequately (Dolowitz, 2007), and researchers themselves felt they did not need library instruction (Haglund & Olsson, 2008). It would be difficult to promote information literacy initiatives in an academic library without support from those who require instruction. If libraries were slow at integrating new technology, users may have felt more advanced than the library. As Haglund and Olsson noted: "Today libraries tend to be one step behind its [sic] users, also when it comes to using other software or platforms than Microsoft Office and Windows" (p. 57). Users would not value library instruction if they felt that they surpassed the library in technological know-how.

To gain a better understanding of the confirmation stage of the innovation-decision process, the research pertaining to information literacy initiatives was reviewed. Information

literacy training may be an important aspect of confirming e-book adoption, both by the individual users as well as the organization more generally.

Summary

The preceding pages have explored the literature pertaining to *Diffusion of Innovations* as well as e-book adoption in academic libraries. The literature demonstrated that e-books were capable of providing users with benefits not available in print, but Rogers (2003) noted: “technological innovations are not always diffused and adopted rapidly, even when the innovation has obvious advantages” (p. 11). It was established that e-books and their integration into academic libraries have presented complex issues that warrant additional research in order to be fully understood.

To provide additional clarity to the complex issue of e-book adoption in academic libraries, the five-stage innovation-decision process described by Rogers was used as a framework to organize the key literature in the corresponding areas. This process will also be used to frame the discussion of the current case. Further, the research did not provide an adequate explanation of the research questions that will be examined in the current study.

They are:

RQ1: How do students, faculty members, and librarians at the University of Ottawa view e-books as an academic resource?

RQ2: How do students, faculty members, and librarians at the University of Ottawa describe their decisions to use or not use e-books?

RQ3: How do students, faculty members, and librarians at the University of Ottawa communicate about resource availability?

Although e-book use has been examined within case studies at other academic institutions, no such case has been completed which offers a full understanding of this unique context. The University of Ottawa is a large, urban university in North America. Additionally, the university has a unique bilingual structure and offers programs in both English and French. Furthermore, research was not found that examined the complex attitudes of students, faculty, and librarians toward e-books as well as communication between these groups within a library environment. This study offers an original exploration into the complexity of the innovation-decision process pertaining to e-book adoption within a unique university context.

Chapter 3: Methodology

The following chapter will outline the research design used in this study and key issues pertaining to data collection and analysis. It will also provide a rationale for the processes used. This study employed qualitative research procedures to explore e-book use in an academic library. Qualitative research was found to be appropriate for the aims of this research and was selected. According to Liamputtong and Ezzy (2005), qualitative research examines how individuals interpret and give meaning to events with the aim of understanding people's behaviour. The purpose of this study was to understand the complex nature of e-book use from the perspective of both users and non-users. Although the researcher had a role in finding information about the case and analyzing themes brought up by the participants, the goal of this study, and qualitative research in general, is to understand the research questions from the perspective of the participants, rather than that of the researcher (Hancock & Algozzine, 2006). It was important to understand how and why participants were or were not using e-books in order to understand their experiences with the technology as well as the case more generally.

More specifically, the research design employed a qualitative case study approach. Case studies have been used in many disciplines (Yin, 2009). The case study approach was well-suited to the research questions in this study due to its usefulness in examining issues of 'how' and 'why' in explanatory studies (Yin, 2009). Furthermore, case study research was appropriate because e-book technology adoption occurs within unique contexts. According to Yin (2003), "The case study is the method of choice when the phenomenon under study is not readily distinguishable from its context. Such a phenomenon may be a *project* or *program* in an evaluation study" (p. 4). The integration of e-book technology in this case

was within this description because, as the literature review demonstrated, there are different approaches to e-book management. Each institution need not only decide which books they require, but also determine which providers to work with and establish their specific access policies. Libraries must also establish whether or not they will support the use of e-book reading devices. The lack of standardization within the provision and distribution of e-books creates unique situations that can be examined effectively with qualitative case study research. Further, Rogers' innovation-decision process provided the theoretical framework for this study. The methods chosen for this study are well suited for guiding the research process under this conceptual framework. As Rogers stated:

In order to explore the nature of a process, one needs a dynamic perspective to explain the causes and sequences of a series of events over time. Data-gathering methods for process research are less structured and might entail using in-depth personal interviews. The data are typically more qualitative in nature than in variance research. (2003, p. 196)

This study presented and was informed by multiple definitions of case study research (Creswell, 2007; Merriam, 1988; Stake, 1995; Yin, 2009). More specifically, Creswell (2007) provided the following definition which was operationalized in this study:

Case study research is a qualitative approach in which the investigator explores a bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information (e.g., observations, interviews, audiovisual material, and documents and reports), and reports a description and case-based themes. (p. 73)

From this definition, it is apparent that case study research requires not only the sampling of individual participants (which will be discussed later), but also the selection of a case. The current case was bound by the Fall 2010 academic term at the University of Ottawa. This site was not only appropriate to explore the subject of the study, but was also convenient for data collection to take place in person. The researcher interviewed participants from each of the above-mentioned groups.

Literature on the topic demonstrated varied use and awareness of e-books between disciplines. The institution being examined is a large, bilingual university with “over 300 undergraduate programs and close to 160 graduate programs” (University of Ottawa, 2010a). It would not have been possible for a study of this magnitude to accurately examine e-book use at the institution as a whole. For this reason, the researcher identified student and professor participants from within the Department of Communication. The researcher chose librarian participants from the university library as a whole, rather than from the single department, to ensure the anonymity of participants. Because librarians at the institution specialize in particular subject areas, it was necessary to include all librarians in the selection process in order to impede their identification and decision to participate in this study. Additionally, the research invited students who were registered with Access Service to participate. This ensured that students who were unable to attend lectures were given the opportunity to participate.

To improve the investigation into e-book use, the researcher reviewed library documents produced by the institution on the subject. Further, the researcher examined external literature on e-book use and information literacy in key databases during the preceding decade. Understanding the case at hand was the key goal. As Stake (1995) noted,

“we do not study a case primarily to understand other cases” (p. 4). The research design was informed by previous research on case study methods and e-book use; however, the process remained flexible enough to adapt to the unique circumstances of the case.

Researcher’s Role and Ethical Considerations

Researchers, especially in qualitative case study research, should reflect on how their role, biases, and preconceptions could influence the interpretations formed throughout the research process (Creswell, 2009; Daymon & Holloway, 2002; Kvale, 1996; Stake, 1995). When interviews are used for research, the researcher is required to take on an even more interpretive role in both acquiring the information from the interviews as well as during the analysis (Kvale, 1996). During the course of the research, the researcher was a graduate student in the Department of Communication at the University of Ottawa. She also had previous experience as an undergraduate student at another post-secondary institution. As a student, she regularly used various resources offered by the university library and developed her own opinions and preferences regarding resource use and management. She had also previously been in contact with some of the professors, students, and librarians at the university. Her previous connections with individuals within the institution contributed to an eased process of gaining entry for the study. Additionally, it is possible the researcher’s role as a student could have influenced the reactions of the participants during the interview process. Consequently, it was important that the researcher appeared neutral and did not disclose personal opinions and preferences during data collection. Throughout the research process, the researcher reflected on ways biases and preconceptions could have influenced the process. To this end, the researcher kept a researcher journal in which she recorded potential conflicts between her beliefs and opinions and the objectivity of the research.

During the analysis, the researcher remained cognizant of the need to remain objective while interpreting the content of the interviews which ensured the true viewpoint of the participant was revealed, free from the researcher's own preconceived notions.

Ethical issues could have surfaced at any point during the research process (Kvale, 1996), and the researcher took preventative measures against these types of problems. Concerns when conducting research with human subjects include gaining informed consent, protecting participants from harm including deception, protecting the privacy and confidentiality of participants, and taking special precautions to protect vulnerable groups (Kvale, 1996; Yin, 2009). The research followed the University of Ottawa ethics procedures and the Research Ethics Board reviewed the proposed research and approved the study (University of Ottawa, 2009b). Prior to the interviews, all participants were provided with an opportunity to review and sign a consent form, agreeing that they were participating voluntarily and had the right to withdraw (Appendix B). They were also informed of the purpose, procedures, and benefits of the study. Participants were afforded both anonymity and confidentiality of the data. Since the protection of privacy "is an important issue in the reporting of interviews" (Kvale, 1996, p. 114), all identifying information was removed from the data prior to analysis. The data and consent forms were kept secure; written notes, consent forms, and other documents were kept in a locked cabinet and electronic data was password protected.

Sampling and Recruitment

It was important to develop insight into e-book use through multiple viewpoints for this research. As Stake (1995) noted, "Qualitative researchers take pride in discovering and portraying the multiple views of the case. The interview is the main road to multiple

realities” (p. 64). To this end, interviews took place with students, professors, and librarians, chosen by convenience sampling. Sampling in this study, and in qualitative research generally, does not aim to allow the findings to be statistically generalized—satisfaction with the richness of the data provided, rather than obtaining a specific sample size, was the aim (Liamputtong & Ezzy, 2005). Although it was not a requirement that the participants had previous experience with e-books, it is important to note that all participants had access to this resource through the University of Ottawa library.

The text used to recruit participants was identical for all groups of interviewees and requested that interested parties contact the researcher directly (Appendix A). It thoroughly outlined the nature of the study, the involvement of the participants, and the benefits of the study. The text assured participants that their participation would be voluntary, confidential, and anonymous. It was available only in English to ensure that all participants would have a sufficient understanding of the language of the study. The researcher circulated the recruitment text during class visits to courses in the Department of Communication. Additionally, Access Service e-mailed the recruitment text to those students who had registered for their services. The researcher identified professors through the online course timetable and librarians through the library website. These provided a list from which the researcher selected individuals to be sent the recruitment text.

Data Collection

Two key sources provided the data for this study: interviews with students, professors, and librarians; and library documentation about e-books. The interviews were semi-structured, as this format is well-suited to case study research due to the flexibility it provides (Gillham 2000; Hancock & Algozzine, 2006). Yin (2009) said, “Overall, interviews

are an essential source of case study evidence because most case studies are about human affairs or behavioral events” (p. 108). Yin (2009) explained that interviewees can provide both important insights into these events, as well as information about other relevant sources of evidence. Face-to-face interviews were used rather than electronic or telephone interviews, as a greater level of ‘richness’ is possible in the face-to-face format (Gillham, 2000). When the interview occurs in person, the interviewer is able to see the interviewee react to the questions and examine not only what is said, but manner in which it is said.

Individuals who signed the consent form were individually interviewed in a location the participant felt comfortable with. Prior to the interview questions, the researcher reminded the respondents that they could refuse to answer any questions with which they felt uncomfortable. The researcher audio taped participants, with their consent, to facilitate transcription and to allow for a greater level of detail, accuracy, and eye contact with the participant during the interview itself (Daymon & Holloway, 2002; Kvale, 1996; Liamputtong & Ezzy, 2005; Merriam, 1988). Each of the interviews required approximately 30 to 40 minutes to complete. Following the interview, the researcher recorded additional notes about the conversation which allowed for additional information to be recalled (Liamputtong & Ezzy, 2005).

For the interview process, the researcher developed an interview guide for each group of participants (Appendix C) with the purpose of describing the topics that were to be discussed in the interviews, as well as their sequence (Kvale, 1996). The researcher applied the interview guide with reasonable consistency in order to standardize the interview experience to the greatest extent possible. This increased the probability that differences between participants were due to differences in the participants themselves, rather than

inconsistent data collection procedures (Flick, 2007). The guide provided a list of open-ended questions that were broad in nature, which allowed participants to express varied opinions, as they felt necessary. Separate interview guides were used for students, professors, and librarians, but contained similar questions.

The researcher asked interviewees from each of these groups about their reading habits generally, as well as their previous experience with e-books. The researcher anticipated that starting the interview with a question about reading in general would help ease participants into the interview. Regarding e-books, the researcher asked how they located e-books and what they liked and disliked about their format. This was to gain information about their use and opinions regarding e-books.

To determine the types of resources used by students, the researcher asked student participants how they located information and which resources they used for academic work. The researcher also inquired into how they became aware of resources and what happened if/when they encountered difficulty in finding information. The objective of these questions was to explore whether and how students communicated with professors or librarians. Correspondingly, the researcher asked professors about their preferred information sources and their method, if any, of communicating these preferences to students. The researcher also asked professors to explain how they were made aware of available resources from the library. Questions posed to the librarians focused on their methods of informing students and professors of information sources. All three groups—students, professors, and librarians—answered questions identifying whom they believe is responsible for ensuring students have current information on available resources. They also answered as to whether collections development should focus on print or electronic formats, or a combination of the two. The

researcher designed these questions to investigate communication that had occurred between these groups, as well as to explore the process by which students gained information literacy skills and opinions regarding responsibility.

Throughout the study, the researcher made adjustments to questions as required by new information or concerns. As Esterberg (2002) stated, “Because the interviews are not prescribed, they can sometimes take surprising turns. Thus, in-depth interviews are particularly useful for exploring a topic in detail or in constructing a theory” (p. 87). Not every question was pertinent for each participant as the topic is largely based on past behaviour and experiences with e-book technology. The researcher used probes to elicit further information and reduce ambiguity in the interviews (Liamputtong & Ezzy, 2005; Daymon & Hollloway, 2002). The researcher assumed the respondents answered the interview questions honestly, and based their answers on their own experiences and opinions. The researcher also assumed participants would have varied degrees of experience using e-books as well as with communicating with others regarding their resource use.

The researcher also examined documents produced by the University of Ottawa pertaining to e-books to gain further insight into the case (Appendix D). These types of documents can “be a rich source of supplementary or primary evidence in research, indicating the way an organization or industry views its past and present actions, achievements and people” (Daymon and Holloway, 2002, p. 216). The goal of the document search was to find any materials available to the users that would have provided information on the availability or use of e-books at the institution. The main university library was physically searched for pamphlets and signs, librarians were asked to provide information they had distributed to students as well as relevant additional information such as usage

statistics, and the library website was reviewed. Unfortunately, the documents discovered in this case were limited in scope and the only information that was found was from the library website. A list of relevant web pages was created and pertinent information was added to the analysis and provided additional and background information, and helped to verify the findings of the study (Stake, 1995; Yin, 2009). Each web page was thoroughly reviewed for pertinent information which was added to the analysis.

Data Analysis

The data analysis procedures used in this case were primarily informed by Creswell (2009). As previously stated, the researcher wrote out initial thoughts immediately following the individual interviews. These notes were added to the content of the interview transcripts to form a deeper understanding of the individual interviews, as well as the case more generally.

Following the completion of all of the interviews, the researcher read the interview transcripts and notes completely to gain a general understanding of the information provided within the interviews and to reflect on their overall meaning (Creswell, 2009). After the transcripts were read through once, they were re-read several times and codes (words or short phrases signaling the topic in each line) were assigned to the segments of text (Merriam, 1988). The codes identified by this process were based wholly on the review of the data, and were not developed prior to the data collection or analysis (Daymon & Holloway, 2002). The researcher also included concerns introduced by participants that differed from prior expectations and broader patterns in the coding and analysis (Auerbach & Silverstein, 2003). Stake (1995) commented on this further: "Clearly, in designing our studies, we qualitative researchers do not confine interpretation to the identification of variables and the development of instruments before data gathering and to analysis and

interpretation for the report” (p. 8). While the literature review provided some insight into issues that could arise in this type of study, the questions and analysis of the study remained flexible to adapt to unique issues in this case. The resulting analysis was not confined to the examination of predetermined variables and issues, but rather emerged from the data to determine what was occurring within the case.

The aim of coding in this case, as in much qualitative research, was not focused on assigning numbers or testing a hypothesis, but rather on finding the potential meanings of the data (Esterberg, 2002; Hancock & Algozzine, 2006). The codes were used to generate both the description of the case, as well as to develop themes within the data (Creswell, 2009). The themes served the purpose of highlighting not only the commonalities, but also their differences (Daymon & Holloway, 2002). The findings of this analysis are presented using themes from the coded data as well as direct interpretation (Stake, 1995). According to Merriam (2002), “Traditional qualitative studies present the findings of the inquiry as a mix of rich, thick description and interpretation” (p. 21). Direct quotes are also included and provide evidentiary support to strengthen the analysis (Liamputtong & Ezzy, 2005).

Additionally, a total of 15 documents, all discovered on the University of Ottawa’s website were reviewed in the analysis (Appendix D). These documents were all produced by the university and were freely available online. Information pertaining to the university’s e-book collection, including availability, history, updates, and usage instructions were reviewed with the intention to extract additional details associated e-book adoption within the unique context of this case. These documents were used to enhance the interview data and were analyzed following the completion of the interview coding process. This

information was used to confirm and provide additional insight into several issues discovered within the interview analysis.

The description, quotes, and interpretation all work together to form a holistic account of what is occurring within the case. Additionally, because understanding the unique context of the case was vital to understanding e-book use within the institution, the information from library documents were also taken into consideration and presented in the analysis (Yin, 2003). The data analysis is not presented by individual respondent groups, but rather, data from all of the interviews exposed key findings and themes which are presented with links within and between the groups of respondents and revealed the key issues in the case as a whole.

Delimitations

The delimitation of the scope of this study was that only current undergraduate students, professors, and librarians were interviewed. The research focused on e-book use within one department at a single institution, and stakeholders outside the university such as e-book providers and distributors did not provide input. The goal of this research was to understand the experience of those within the university context, and external participants would not have been able to contribute to this aim.

Validity, Reliability, and Generalizability

There are multiple perspectives regarding the most appropriate way to determine validity and reliability in qualitative research, and the researcher used several in this study namely, multiple sources of evidence, triangulation of data, thick description, researcher reflection, the presentation of conflicting data, and the creation of an audit trail. Multiple sources of evidence provided different measures of the same phenomenon, which increased

validity (Creswell, 2009; Yin, 2009). This study used two sources of data that were triangulated to gain an in-depth view of e-book use at the institution. Furthermore, the researcher provided a thick description of the findings (Creswell, 2009; Merriam, 2002). Reflecting on the effects that the researcher could have brought into the research process also helped to ensure validity (Creswell, 2009). Rival explanations and discrepant information within the data were provided in the analysis (Creswell, 2009; Yin, 2009). An audit trail (Daymon & Holloway, 2002; Liamputtong & Ezzy, 2005; Merriam, 2002) or procedural memos (Esterberg, 2002) created by the researcher during the course of the study help to keep track of what has been done, to allow others to assess the significance of the research, and to add to the rigour or reliability of the research. For this reason, the researcher kept detailed notes describing the events and decisions that took place during the research process.

Chapter 4: Findings

The purpose of this research was to examine experiences with e-book technology within an academic library. To this end, the University of Ottawa was chosen as a case, which will be presented in the following two chapters. This chapter will outline the results of the research. The subsequent chapter, Discussion, will review the findings in depth and discuss their significance in relation to the five stages of the innovation-decision process as well as the research questions posed in this research. The first section of this chapter will report on use and opinions of e-books. The latter section will examine communication between students, professors, and librarians and the ways students and professors became aware of the resources offered by the library. The participants will be identified according to the group to which they belong, with letters for differentiation (i.e. Student A, Professor B, Librarian C, and so forth). A total of 14 participants were interviewed: four were librarians, four were faculty members, and six were students.

Use and Opinions of E-books

E-book use at the university was examined to determine whether the participants had any previous experience using e-books, either through the university or for their own personal use, as well as to identify the librarians' understanding of e-book use within the institution. No quantitative data was available on e-book use within the university. The uOttawa Library Annual Report (2009), accessed from the library website, detailed the number of website views and the quantity of e-books in the library collection. It also provided the number of e-books held by the university annually, reporting increased numbers of e-books over the several preceding years. The same document provided the number of items borrowed, but did not categorize these items into types. Supplementary

information pertaining to e-book use was not found on the website, and the interviews with librarians confirmed that the library was unable to access this type of data. One of the librarians explained that some platforms provided a limited amount of information about e-book use, such as the number of books that had been accessed, but supplied no information about the extent to which the e-book was used. The 'uOttawa Library Annual Report 2009' also demonstrated that both the size of the collection and the number of visits were larger in the bricks and mortar library than online (Table 2).

Table 2

Comparison of Physical and Electronic Library Use (uOttawa Library Annual Report 2009)

| | Physical | Electronic |
|--------------------|------------------------------|--------------------------------------|
| Collections | 1,951,562 print volumes | 43,217 e-journals 366,999 e-books |
| Visits | 2.4 million in person visits | 2.1 million web visits |

The lack of quantifiable data pertaining to e-book use at the university indicated that the librarians relied on their own opinions of student preferences and anecdotal evidence to inform their collections development decisions.

This research also examined the extent to which the students, professors, and librarians had used e-books (based on the users' perceptions). All of the participants had used e-books, generally on several occasions. The students typically used e-books from the school library and read them on a computer screen rather than printing or downloading them to a dedicated device. Student F, the only student who had used e-books extensively, found e-books and e-journals beneficial for locating specific pieces of information. She believed e-resources possessed greater validity than information from other online sources, such as

Wikipedia, for her academic work. Student B discovered e-books through Google Books after forgetting her print copy of a required book. She described e-books as useful and convenient. While some students spoke of the usefulness of e-books, others were less opinionated. For example, Student E had used library e-books “A few times” but seemed to be indifferent and stated: “It’s just another source.”

All of the professors and librarians had used e-books, either from the University of Ottawa library or from other institutions. Although the extent of their personal experiences with e-books tended to be limited, all of the professors who participated allowed students to use e-books in coursework⁵. None of the librarians had used e-books for leisure reading, but they had all used them professionally. In this role, they purchased relevant e-books for the subject to which they were assigned and/or promoted the library’s e-books. The librarians mainly informed users of the library resources through the library’s website. Several of the web pages described the benefits of using e-resources. The ‘Digital Collection Development Policy’ stated: “Digital material is expected to create unique value. This includes: additional content; enhanced functionality; 24 X 7 accessibility; incorporation with teaching technologies; linking with other information resources; improved resource sharing ability; and ease of archiving.”

Additionally, the ‘How to Find Electronic Books’ web page explained how users could locate e-books in the catalogue. It also provided a list of individual platforms in which users could find e-books, which the page indicated had not been added to the catalogue. The ‘How to Find Electronic Books’ page also described some of the benefits to the individual user: “The various e-book databases provide such features as: searching the full content of

⁵ Several students indicated that professors informed students that they were not permitted to use certain electronic resources for their coursework. For this reason, professors were asked if they had restrictions on certain resources.

one or multiple books simultaneously; highlighting text; adding personal notes and creating one's own bookshelf; downloading content; linking out to cited content; and exporting references to RefWorks." While the resources were promoted to users in this way, it was unknown if users found these aspects of e-books beneficial.

User Preferences

In order to determine which aspects of e-books the users found beneficial, the participants were asked to explain what they liked or disliked about the e-book format, compared to other resource formats. The perceived advantages and disadvantages of e-books varied according to personal preference, although some commonalities were found. The most common benefit students cited was the ability to search within e-books. They said that the search function was easy to use and several students specifically mentioned the keyboard shortcut for this feature. This function allowed them to quickly find information they required and facilitated their ability to fact-check. Students also mentioned the convenience of transporting and accessing a large volume of e-books on a computer or other device. Another key benefit was the financial savings associated with free e-books. Several students said they appreciated professors who assigned freely available resources for coursework. Despite a fondness of financial savings, Student A said she would be willing to pay more to have a print copy, if she had to purchase a resource.

The students also mentioned other benefits of e-books. Student D thought they were easier to locate than print books. He also explained that certain platforms allowed annotation and highlighting, making the online reading experience similar to print reading and easy to use: "they are trying to make it as similar to actual reading as possible, but again it's just a personal preference thing, I think." Personal preference, rather than any substantive

advantage of print or electronic books, was the predominant reason students provided for preferring print books. Student C revealed:

It's not so much the format, it's the reading it off a computer screen. You know, you're looking at screens so much during any given day that looking at a screen can really hurt your eyes. And I like the smell of books and I like being able to hold something in your hands and it's hard to curl up with a computer screen or even like a laptop and read an e-book.

Participants in all groups disliked reading off of a screen. Reasons provided included a preference to hold something in their hands and complaints about the additional eyestrain caused by screen reading. Students indicated that screen reading bothered them less when using a shorter document or when looking for a specific piece of information. Student A explained:

I find that I read a lot better if it's in my hands. If I can flip the pages, if I can write in the margins; I understand better. And I get a really microscopic view from reading an e-book because of the search function that I can use. So I don't understand the context of a particular issue because I just want to read about that issue and be finished with the book as soon as possible.

Student E also disliked reading on a screen but said she would "suffer through it" if she could not find a book or an e-journal to print and use. Student D disclosed: "Personally, I'm not the kind of person that likes to read off of a screen. Any kind of screen." He explained that he preferred to read with his finger to keep his place but thought that e-books were beneficial if a quick resource was needed. He previously tried to read a whole e-book and "just couldn't do it."

The professors also preferred print. Professor C found e-books practical because they could be accessed outside of the library, but used print more frequently: “I guess I still just typically like to be holding something in my hands.” When asked about the benefits of e-books, Professor D said he liked when they worked quickly but noted that this was not always the case. He continued, “Oh, and when book companies don’t suddenly yank them from the library database.” The professor then recounted his frustration pertaining to an incident when he assigned an e-book as course reading and it was subsequently removed from the library e-shelves. Regarding e-books in general, Professor D said “Everything else sucks” and specifically highlighted his dislike for reading on a screen, their lack of portability, and the additional distractions when using a computer. He was not the only professor wary of e-books. Professor B had used e-books in courses, but was hesitant to use them again: “I liked them for some aspects of the class but for other aspects I found it very dangerous, as a way of teaching and relying on it too much.” He explained that other faculty members taught by simply reviewing course notes and online material, but claimed his style of teaching placed a greater emphasis on hands-on learning, in-class discussions, and teaching the course himself. Despite his concerns, he mentioned that e-resources could be beneficial for increasing participation and connectivity between students outside of the classroom.

Similar to the students and professors, the librarians preferred print for their personal use. Librarians mentioned convenience, ability to search, and in-text links as the key benefits of e-books. Despite giving preference to e-books when purchasing for the library, Librarian B did not read full e-books for her personal use because she said, “cognitively I’m not capable of doing that.” She noted that she only needed to use one book at a time, which she

could get from the library; so carrying many e-books on a reader was not advantageous. When asked if the e-books were easy to use, Librarian A shared that it depended on the platform: “sometimes they’re intuitive, other times not so much.” She had not used a Kindle, but postulated that it might make e-book use easier.

The librarians generally thought students preferred e-books, mostly for their convenience, and consequently promoted them to students. Librarian C believed students liked the convenience of e-books but stated, “I bet you there’s a fair percentage who like the print version better.” In addition to personal preference, several librarians also noted that e-book use varied among disciplines. Librarian D stated, “there are some fields where e-books just aren’t considered.” Similarly, librarians indicated that certain types of books were more suitable in either the print or electronic format. For example, Librarian D stated that e-books were particularly useful for books containing information that needs to be updated frequently. Furthermore, Librarian C thought some students may have preferred to use certain online databases due to their additional subject-specific resources.

Purchasing of E-books

The librarians discussed cost and issues pertaining to e-book procurement. Librarian C said it was not library policy to always buy e-books and that some documents were not yet available electronically. She said the library had a priority list of e-book platforms and she attempted to purchase e-books from the essential course reading lists. The licensing agreements with the providers were negotiated individually and represented a mix of perpetual and subscription licenses, depending on the platform. Librarian D described the varying agreements as “not yet moving to consistency.” Librarian A observed that while she thought more of the e-books were purchased in perpetuity, “I’m sure there are some

resources that disappear because we didn't realize that or the purchaser didn't realize that it was for set or a limited period of time.” Librarian C provided an example of a situation in which a specific e-book required by the students for their course work went missing.

Students informed the librarian of the book's disappearance, but by the time it was procured from another provider, the students no longer required it. She said disappearing books was an issue with subscription licenses.

E-book policies have also altered other aspects of library transactions, such as interlibrary loans. Librarian D revealed that no interlibrary loan procedures have been developed for e-books, but that might change. She said several major publishers were already allowing loans from public libraries on certain e-books:

If they're willing to lend out a copy of the latest best seller, then they are probably going to be a lot more willing to lend out some dry, statistics, economics book. But it's going to be far more limited than what we have with print, for sure.

The librarians found the lack of standardized access and use policies more challenging to work with, compared to print books. Librarian B stated the restrictions were “brutal” on a platform she used at another institution. She said the varied policies adopted by the electronic publishing industry as a whole were, “sort of like wild cowboy policies.” Despite difficulties, the different providers have been used to the library's advantage. One librarian explained a case wherein she purchased e-books on two different platforms and promoted each provider to a separate user group to avoid users being denied access. She also noted that the library may or may not have received adequate feedback when users experienced problems with the resources.

In addition to their complex policies, Librarian B also explained that e-book prices are higher than print: “They totally jack up the price of an e-book over a print resource, over a print book. We’re getting gouged by the publishers.” The other librarians also indicated that e-books were typically more expensive than print books for the library to purchase. Librarian C suggested that certain publishers refused to make textbooks available electronically to force sales of the print version. She also said that other e-books were only available under a subscription license, and consequently had to remain in the annual budget. Additionally, she noted that textbooks were sometimes not available in the package deals or through consortia, which made providing necessary resources to students more expensive. Despite the increased initial price of e-books, Librarian C explained how they may save money in the longer-term:

So we buy an e-book which costs more than a paper book, but not that much actually. The difference isn’t totally significant unless it’s one of those medicine books that’s by subscription only. But the average e-book that you buy isn’t so much more expensive than a normal book. But you’ve just saved the cost of processing it right? Like nobody has to put stickers on it and bar codes and all that business. You save the travel time of it getting to our acquisitions department and then cataloguing and being handled and then being sent here. It’s not going to get lost in the mail. And even here, our own staff at this end. If it’s on reserve or something then we have staff, you know taking it out and checking it out and giving it to them. So, that all goes away. All of the re-shelving, all of that business goes away with an e-book.

While pricing issues did not affect students directly, Librarian C noted that the varied downloading and printing policies could have led to students being knocked out of certain

platforms. She also mentioned that students had to remember many usernames and passwords and while single sign-on could simplify the process of using e-books, it was not available on campus. Librarian D expressed concern that students might try to access e-resources they had paid for through student fees which were not properly linked on Google Scholar and, as a result, would be mistakenly told they had to pay for resources they were already entitled to.

E-resource procurement at the university was regulated by the ‘Digital Collection Development Policy,’ which was available on the library’s website and stated:

It is the objective of the University of Ottawa Libraries to collect scholarly digital materials in order to provide broad access to relevant research at every level of need, including full-text journal literature, books, reference works, databases, geospatial tools, datasets, and other material.

The policy explained that the digital material should meet the same criteria as the other acquisitions and described the intended outcomes in terms of accessibility. The ‘Digital Collection Development Policy’ stated: “We are committed to providing equitable, barrier-free access to our collection, in accordance with the Access for Ontarians with Disabilities Act and the Ontario Human Rights Code.” E-books’ potential to benefit users with certain impairments or handicaps were described in greater detail by Librarian D:

E-books should be a boon for people who are visually handicapped but a lot of other learning disabilities as well. And all I know for sure right now is that it’s not straightforward. It is going to depend on the publisher, on the e-book reader, on the software.

She continued to explain that issues of accessibility depended on not only whether the e-book was available, but also how the student was able to access and use the software.

Although students registered with Access Service were solicited for the purposes of this research, no student participants in the study were located through this recruitment and none of the other respondents indicated previous difficulty in terms of accessibility.

E-readers and Technology

Despite the fact that e-readers have addressed several main disadvantages associated with e-book use, the library website did not provide any information pertaining to how users might use these devices to access the library's e-books. The ability to download an e-book and read the content on an e-reader depended on the specific licensing agreement; however, the librarians indicated that the library's e-books could generally not be downloaded for use on readers⁶. Librarian D linked this issue to control: "A lot of the more commercial programs just do not allow it. They're very, very worried about the books getting disseminated that way. They don't trust that we have any control over them yet. Or they're just too scared." She predicted that use would open up in the next few years and follow the progression of e-journals.

Several of the professors and librarians predicted that e-readers would become more popular over time, particularly amongst the younger generations who were becoming more comfortable using technology. Librarian B said she had never used an e-reader because she was "behind the times." Professor A described her frustration with students who were "addicted" to their devices and had difficulty focusing in class. She described herself as "old fashioned" and expressed concern about students' reliance on technology and devices.

⁶ When I asked one of the librarians about e-reader use, she indicated that these types of devices could be used if they had an internet browser and connection, but that the books could not be downloaded and used the same way as popular e-books from online providers or public libraries.

Professor A explained that while the program was primarily theory-based, students want to have more hands-on experience and she thought communication students should develop practical skills. She said “Students don’t read” and continued to explain:

So there’s not that discipline that we grew, that I grew up with. I always have a notebook with me because I get ideas and I write them down or whatever but I wouldn’t go anywhere without my pens or whatever. But these kids, if I get them to sign attendance, most of them don’t have a pen.

Professor B was also concerned about the direction education was heading and that there were things that cannot be learned from a computer; “I’m one of the anti-people out there I guess.”

Several of the students had used e-readers previously, but none of them indicated that they had attempted to access the library e-books on this type of device. Student A said she had encountered problems accessing the library’s e-books from her house and suggested that the library should focus on this type of problem before working towards facilitating retrieval on an e-reader.

Resource Use and Location

This research also examined the types of resources students used for academic projects and how they had located these resources. For the most part, the respondents used resources they deemed appropriate for the type of research they were conducting. Students frequently described their use of e-books as occurring only in the absence of alternatives. Student A said she would use the library’s e-books only if the print version was not available, while Student C was more likely to find a print book than she was to go online, but revealed she used Google “a lot.” Additionally, she had only located e-books using

Google and not the library. She explained why she used print books: “But as far as use, I prefer the character of a book. So I tend to go to books more than I would an e-book unless I’m looking for a very specific piece of information.”

Most of the students located e-books and other resources through the library catalogue as well as through Google. Student D used Google to find e-books because he did not know how to locate them in the library. Student F said that while Google had more resources, she preferred to use the library catalogue because it more accurately located useful resources. Student F said online e-books were “Pretty straight forward,” but was unsure if the university’s e-books would be as user-friendly: “I know when I was trying to access the online e-journals it was kind of a painful process to actually get to them, and find exactly what I was looking for. Google Books and stuff is super easy.” Student D used e-journals and paper books for research and he generally did not like e-resources because he found print documents easier to skim.

The librarians also provided their opinions regarding student resource use and linked student e-book use to their advantages. For example, Librarian A proposed that students valued currency and resources they could find immediately. She helped students access e-books and showed them the various platforms. She said she promoted e-books to students because “they can access it from home because I know many students are really not checking out a lot of books it seems.” Librarian C explained that librarians focused on trying to get students to use high quality, academic sources. She said that although there was some high quality information available for free online, not all online sources should be trusted. For this reason, she noted that librarians tried to teach students about trusted sources early on.

The librarians also acknowledged that students liked to use Google to find resources. To address this issue, the University of Ottawa launched a new catalogue in the summer of 2009. A trial version of the new catalogue was initially available to users in addition to the classic catalogue. Later, it became the primary catalogue. Librarian C spoke about the new catalogue: “The goal was to improve, in particular, the undergraduate students’ experience with the catalogue to try to get them to use it to find their stuff.” The new catalogue, according to Librarian C, did not return a zero result, making it more likely that a student would become a repeat user. Additionally, she stated that refining tools were obvious and contained relevant criteria, including limiting the results to e-book format. Despite the intended advantages, none of the students commented on the new catalogue or an improved user experience.

E-journals and Sections of E-books

As previously mentioned, participants were more willing to read shorter documents online rather than longer documents. E-journal articles were offered in more standardized formats, typically in PDF and/or html, whereas e-books were less standardized and depended on the provider. Librarian D explained: “It’s just that it’s a fairly new technology, or it’s a new concept. So each publisher wants to have their very own reader that has links to their own store, or the store they’ve chosen to put their e-books in.” According to Librarian D, the library continued to purchase print but preferred electronic resources, when available; although some of the journals were only available in print format. Several of the librarians disclosed that they did not typically promote or use the print journals. Accordingly, Student A was unaware that print journals existed, although Student C indicated that she had used print journals. Students preferred to use the e-journals because they were easy to find on

either the library website or on Google. When using e-journals, students indicated that they typically printed the content, to allow annotation. Librarian B explained this further: “It makes a lot more sense to print out like a 15 page article than it does to print out a 150 page book, obviously.” Student D also stated that he did not mind reading the shorter journal articles on the screen, but just did not like reading longer formats on a screen.

Several librarians directed students to specific sections of e-books, by highlighting them to the students. Librarian A said she did this because the interface differed between providers, and Librarian B said she mostly referred students to encyclopedia-like e-books which were already formatted into articles. She said that with books that are not divided into articles, she tends to “exhibit the same kind of laziness that we always say students have,” and stated that she did a keyword search to find the most pertinent sections of the book.

Communication at the Library

The professors and librarians were asked how they communicated about resources. According to Librarian B, librarians informed faculty members of changes to the collection through a newsletter, the library website, and by e-mail. Each area of study had a designated subject librarian who was responsible for the corresponding faculty members and students. Librarian A said class presentations were arranged by professors but that she typically reminded them of the services librarians could offer by e-mail. She also noted that because the university offered courses in both English and French, librarians had tried to invite themselves into certain classes to ensure that both groups of students had similar learning opportunities. Librarian C said communication with smaller faculties or faculties with a lower turnover were easier. She said the librarians attempted to reach out to professors on new faculty day, but communication “falls through the cracks all the time.” Because there

was no standard policy, some professors may not have any contact with a librarian during the term.

Professors also initiated contact with librarians. Librarian B said there had been instances where professors requested that the library purchase an e-book from a publisher's website. In some cases, it was not possible for the library to purchase the specific e-book because the provider did not allow multi-usage licensing or access via proxy server. She explained: "They just don't want to deal with it, it's a lot of work on their end maybe, but they don't want to make it available." Although some professors asked the library to acquire certain e-books, Librarian D said some still avoided e-resources. She explained that after someone has mastered a tool, it is efficient for them to continue to use that tool and older researchers may not want to invest the time into learning how to use e-resources.

While the librarians indicated that they had been in contact with each of the professors annually at a minimum, the responses from the professors signaled that this may not have occurred in practice, or that the professors were unaware of the librarians' attempts. Several of the professors said they had not been contacted by a librarian for the course they were teaching but also noted that if contact was attempted by e-mail, it may have gone into the junk or trash folders. Professor D observed that while he was not contacted, he was aware that help would be available. Professor A said she had her own library of resources and was "constantly in touch with the library."

Professors' Expectations

Professors' expectations of student information use were also examined. They preferred if students used the most relevant information rather than the latest technology. Several professors indicated that their expectations related to the type of course or the

individual projects. For courses with a research focus, the professors expected higher quality sources, but were more willing to overlook weaker sources when the course type allowed.

Professor C said the focus was less on how the students located the sources and more about information literacy:

So, it's more building capacity in them to be able to recognize when something is a credible source versus not and I think that is something that has become more and more important as there has been more and more reliance on the internet.

She went on to say that she never prohibits online sources: "because I feel like that is where we are now and there's no reason not to use them." The professors typically required a minimum number of scholarly sources. She said the students "typically" used this number: "by fourth year they're pretty well there. But second year, not always."

When asked if the professors made their expectations clear, Student A said: "The majority of them don't but I think they would if I were to ask. I just kinda know." Student E indicated that professors were clear and "you can tell that they really notice that a lot of people don't use books and they tend to just kind of like skimp and go online." Student D said he had been given the opportunity to use an online text for one of the courses he was in but "It's just personal preference" that he does not like e-books. Student F encountered a situation where a professor prohibited online resource use. She explained:

I guess they don't know as much about the technology. They don't know how reliable it is and they prefer the old school way, which I understand. So it's kind of deciding what's in the comfort zone for them when you hand in your paper so you don't make a huge mistake citing something that is quote-unquote unreliable.

In the end, the professor said she could not stop students from using e-books and that students should “just cite them as real books.” Student F reasoned that professors might be cautious of the limited views and potential for lost context on certain online e-book providers, though the student revealed that she typically does not read the whole print book either. She also stated: “it’s kind of insulting,” “obviously I double checked the piece of information so if I really do end up taking it out of context, I’ll find out somewhere along my research lines.” She questioned whether the professor read the whole resource, but said she used the resources to find a piece of information.

Soliciting Help

The interviews also explored students’ requests for assistance in finding resources. Most of the students had not requested help from a librarian or a faculty member. Student A asked a professor for assistance before commencing a research project. Student B asked a librarian for help because a professor told her it would be helpful. She said she likely would not ask for additional assistance: “I think that now that I know how to use the website, I’m ok. So what they do is they just use the website, right?” Generally, the students seemed comfortable with conducting research and finding sources. One student (D) said: “I’m pretty good at doing research I think.” Student E thought the library resources were “pretty laid out and straightforward” and that it would be sad if using the library confused her because she is in fourth year and “[She] know[s] how to use the library.”

Student F encountered difficulty locating resources outside of the main library. She explained: “So sometimes it’s a wild goose chase to find the sources you need. So in that sense, that’s what’s really nice about the online things, it’s all in one place and it’s really easy to access.” She attributed this confusion to the fact that she was in first year and less

familiar with the acronyms used for sources and locations. She had another issue wherein her computer said the library website was not secure. A librarian told her it was a common issue, but it made the student anxious. She said: “That’s kind of scary. So that’s the one thing that is a little nerve-wracking” (Student F). The students who had not encountered difficulty finding resources indicated that many sources were available, and if high quality sources could not be found, they would have used lower quality sources or different information.

Responsibility for Informing Students

Respondents were asked who should be responsible for informing students of the library resources. The librarians accepted their own responsibility, but acknowledged that they did not always have significant contact with students. For this reason, some of the librarians stated that instructors also had a role. Librarian B said that while it was the librarians’ responsibility, it did not happen systematically. Librarian A thought it was “a dual responsibility of the librarians and the professors” and since students did not always come into the library “in that sense it’s nicer if the professor actually pushes the information to the students because then of course the students will actually listen to the professor a little bit more than a librarian.” Librarian C said students might be unaware of services and might just give up if they encountered difficulty locating documents.

Compared to the librarians, the professors were not as quick to pinpoint who they thought was responsible. Professor B seemed hesitant and stated, “I guess somebody that is responsible for the library. That would be my guess. I’m not sure though.” While Professor D stated that the library, as well as whoever is in charge of first year students, would be responsible, either at the university or department level, Professor A took on more responsibility and stated, “I am constantly mentioning things to students” and continued to

express her appreciation for librarians' help with resources. Professor B said students could go through entire semesters or years without contact with administrative personnel, and while it was beneficial that librarians promoted resources, "almost any news has to be relayed through the professors, down to the students."

The students placed most of the responsibility on the professors when it came to informing them of resources, although one was unsure. Student A reasoned that professors should "know what the content of the class is so they should know what exists at the school to emphasize that content." Student B said her professors had told her about resources, but she was not sure they were responsible. Student C thought informing students should be "a combination between student services, the library itself, and internal communications for the school." Several of the students received e-mails about various student services, but could not recall library-specific information. Student C said that students entering university are not necessarily accustomed to doing academic research and may only know how to research using a Google search. Student D said it would be helpful if professors told the students to go to the library to learn about resources "because I know a lot of people who just don't go to the library, at all."

Information Literacy

The university did not have a standardized program for information literacy development nor for notifying users of resources. Instead, the individual librarians promoted resources to students online, during in-class sessions, and one-on-one. According to Librarian B, informing students of resources was difficult. She said it is typically done during class sessions "But that's sort of piecemeal," "It's not comprehensive; we don't have a comprehensive program." Even with the processes that were in place, Librarian B said

some students might not have seen a librarian and others may have been confused. She said: “A lot of people will go through their entire degree without ever going to a librarian. Now whether or not they’re able to find the resources in our catalogue on their own. That’s quite possible. But, I don’t know.” She continued to explain that the onus was on the students: “I think a lot of students probably don’t have a really comprehensive understanding of what is available to them, unless they’re really keen.”

The librarians also recognized the role of the professors in informing students of resources. Librarian D thought that if the professor stressed the importance of academic sources to the students, they would use them. She also noted that as students reached the upper year courses, they used more academic sources. Professor C arranged information sessions for her courses but indicated that students did not perceive the sessions as important. To address this in the future, the professor said that she would link the session with an assignment: “because students will tell me straight up, if they don’t think they are going to be tested on it, they don’t see the utility in it.” Professor D has had his students participate in a library information session but during the session just made sure the students were well behaved. When asked how he became aware of the resources that are offered he said: “You know, I’m probably not, I don’t really avail myself of much in that manner.” He said first year students should have a mandatory library information session at the beginning and end of first year. He explained: “First they go through it, they muck around with it and at the end of the first year they go and do it again.” He has not considered taking other courses to the library because he typically teaches upper year courses “so it just hasn’t occurred to me because if they haven’t learned the basics by then, I guess I’m writing them off as a lost cause.”

The students learned about the resources offered by the university in various ways and seemed to be aware of the resources in general. Two of the students explored the library website independently and then they had a session, one led by professor and one led by a librarian. Both of these students said the sessions were not useful because they already knew how to do web searches. The student who had a session led by a professor explained:

Like that's pretty easy when you look at the generation that's in university right now, we are pretty web-savvy as far as being able to find things and to have that explained; it was just a waste of time. I think people are pretty intuitive when it comes to figuring out how to use a search bar to find things. And the library website's really easy to figure out too, which makes it easy. (Student C)

She had not been in a librarian-led session but thought their unique insight could be useful. Student F, who had been in the librarian-led session, said although she found the session "boring," other students may have found it useful. Student A discovered library databases through her roommates, but not until half way through her first year of university. Later, she had been in a library session and said the librarians who come to class are "really boring but they do give you information about a lot of the resources that the school provides." Student E learned about resource use in high school, and more recently through librarians and professors. She explained that "constant repetition has ensured that it is now foolproof" and said the librarians were clear and the sessions were useful "The first few times," implying that she had attended multiple sessions. Student B learned about resources by exploring the website and had never been in an information session but said she thought it would be useful because "This library is so huge." Student D said he learned about resources from professors and "I knew we had the journal database I just never really used it until I was made to use

it.” A librarian had not come to his class since high school but when asked if he thought that would be helpful he said:

It actually might be. I feel like I may have figured most of it out by now, but definitely I know a lot of people are still relying on Wikipedia and then they go to the sources at the bottom or they’ll go Google search. So, it may be helpful for a lot of people to definitely get a presentation and learn a bit more about the resources that are available.

While the students seemed fairly comfortable with research, they found it useful when they were able to learn more about resources. The redundancy described could likely be attributed to the fact that the library did not have a university-wide information literacy development program, so some students attended several seminars on the same research skills.

Source Credibility

The students generally thought they were able to determine whether or not a source was credible, but questioned their peers’ ability to do the same. Some of the students said they expected the library provided credible information. Student F explained that the library is the most reliable: “Mostly because I trust books that are in the library catalogue. If I’m sitting on my bed and there’s no e-book copy on the library catalogue and there is one on Google, I will read the one on Google.” The students said that information found on the Internet more generally (such as information located by a Google search), might not be as credible and if they used information from this type of search, they would likely fact check or find the information they used in multiple sources.

Student D thought he could determine credibility more effectively than his peers because one of his high school teachers stressed the importance of using credible sources. He

said some of his classmates used the sources cited by Wikipedia articles because they thought they were more credible than Wikipedia itself. The student also explained that he was taking courses at the first-, second-, and third- year levels and that as the levels progressed, the quality of his peer's research increased because the students learned from the other students, as well as professors. Student A had difficulty determining the credibility of resources, especially online. She said the library facilitated the research process by grouping the most relevant research and authors together. She explained, "Because with a Google Scholar search, everything comes up, right? And all the scholars, they're equal because they're all scholars, right? And you don't know. It's all like they're anonymous, right? Just because you can't understand who they are." She believed information published in print was more valuable because a publisher had reviewed the content.

As mentioned previously, the professors only viewed credibility as an issue for certain courses, though some professors and librarians raised concerns regarding the ability of the students to determine credibility when necessary. When asked if there was a difference in students' ability to determine credibility in print compared to in electronic formats, Professor C said the books and journals the library held were credible but the internet allowed students to access significantly more information, "So I guess it would be harder just by the nature of the diversity of the material available and the amount of it." She tried to give feedback and explain to students the importance of using a variety of sources but noted that teaching students about issues of credibility was a challenge. The same professor (C) also brought up the issue of plagiarism: "It's not that I feel like it's necessarily that there's plagiarism going on, I think it's just becoming overly easy." Professor D typically set a minimum number of scholarly sources for projects and when asked if the

students included that number he said, “Most of them, most of them. You know, there’s always a bunch of fools who don’t.” He also said that students might be more likely to go for lower quality sources online where it might be more difficult to determine whether the source has any substance.

The librarians were skeptical of whether the students were using credible sources for their research. Librarian C said that librarians stress the importance of using credible resources to the students, she said, “But ya, there’s still a lot of Google going on.” Librarian D said:

Most undergraduates think that they are great researchers. They think they have mastered the Internet and they might very well have. But what they haven’t mastered is academic sources on the internet. There’s a big difference between finding something on your topic on the internet and pulling out peer-reviewed, academic, what the big thinkers are thinking, where the current research is. Most students at the undergraduate level come in not knowing how to do that and a lot of them will leave without ever picking it up. We reach as many students as we can, but it’s a hard, hard, sell.

Librarian D also said students no longer considered questions of bias and did not think they had to use the library to locate academic sources. She explained that while librarians could try to convince students of the library’s importance, much depended on the professors’ willingness to facilitate this and to link the skills to increased grades. Librarian D also mentioned that determining the type of resources and the paper of record has become more difficult online and questioned whether traditional distinctions would matter in the future.

Librarians considered these larger questions, but were not able to clearly ascertain how resources and their use might alter future research.

Increasing E-book Use

The respondents were asked if there were circumstances under which they would be more willing to use or to promote e-books. The key responses mentioned by students were that they would use them more if they needed the information quickly or if the material was only available in e-book format. Additionally, Student B said that if more e-books were available, she would use them more. Student C would use e-books more if she had an e-reader. Student F said she would be more eager to use e-books if she was encouraged by professors to do so, noting that this usually did not occur. She also stated that the library should promote e-books more so that “maybe there would be less stigma around them for the professors and faculty.” She trusted the library resources, but noted that users should double-check information.

Librarian A would promote e-books more if they had an easier interface or if students wanted to access resources immediately from off campus. She said the library generally tried to promote the more expensive e-books. While Librarian B was primarily concerned with the content, she said: “if the book was available in both, I’ll preference the e-book, despite the crappy printing policies.” She also thought her students preferred e-books to print because they wanted to get information as quickly as possible. Librarian C said e-books were promoted on all of the lib-guides, particularly the frequently used e-books.

Future Collections Development

Respondents also provided their opinions on future collections development at the university. The most common reaction from all participants was that a combination of print

and electronic resources should be purchased. The reasoning provided by the respondents echoed the perceived advantages and disadvantages: although they acknowledged beneficial aspects of e-books and thought they would be the way of the future, their personal preference tended to be more supportive of print.

Student A explained that while e-books made it easier to find information quickly, she was apprehensive about some of the larger issues such as the potential loss of context and author prestige in electronic formats. She stated: "I really hope it's a trend and it dies. Just because I really feel like it's kind of destroying the publishing industry." She also questioned the role of the library if only e-books were purchased, but said she preferred to search the bricks and mortar library for resources. Similarly, Student C was concerned about the potential for context to be lost in e-book format, but said a combination of resources should be purchased, based on the subject matter. She said that while e-books were gaining popularity, some people continued to appreciate print books: "And I think that some people have a higher value of books and I'm definitely one of those people." Other students also believed that e-resources were the way of the future. Student F said, "it would kind of suck if all of the print resources were completely outdated," but continued and said "I'd say probably focus on the electronic resources just because it's kind of the direction things are going now, I think, for sure." Similarly, Student D said that although the trend was toward electronic, "I'm not a fan of e-books myself. I know that a lot of people really love them and electronic resources are really easy and convenient and just generally very good."

The professors also believed that e-resources were the way of the future, but preferred print. Professor B said future collections development should be a combination; however:

I think that it's inevitable that everything is going electronic and in fifty years the book may be extinct or whatever. So why are you investing in infrastructure that is soon to be doomed? But then that's like my mind talking, but I still prefer having a book in my hand for reading it in my bed or on the couch or taking to the library. And maybe that kind of feeling is going to be bred out of the next few generations that come.

The librarians also supported a combination of formats. Librarian C said user preference was considered when the library purchased e-books because: "Some people just don't want the e-book." Although she acknowledged the role of personal preference, Librarian D believed that undergraduates preferred e-books: "The younger the student, the more open they are to working directly from wherever they are, on the web without coming out the library. E-books are a plus." She said the library would not discard the print books already collected and although e-books are popular, the library "will shift with what our users want," even if they wanted to shift back to print.

Summary

The preceding chapter has outlined the key findings of this research. In terms of e-book use, little quantitative information, other than the number of e-books the library had access to, was known. The participants appreciated certain aspects of e-books, such as their convenience and search functionality, but disliked others aspects, primarily screen reading. In general, the participants preferred to use print books. For shorter documents, such as e-journal articles, the users were more willing to read the information on a screen or to print out the information. E-books were more expensive for the library to purchase, but required less time-consuming effort on the part of the librarians and other support staff. Because the

licensing and usage agreements have not been standardized, e-book readers were typically not supported.

The professors and librarians did not take issue with the students using e-resources, but focused their attention on whether or not the students were able to use information that pertained to the type of project they were assigned. The student respondents also said they attempted to use appropriate information rather than certain technology.

The librarians said they communicated with professors minimally once a year, but the professors typically were unaware of these efforts. Both of these groups acknowledged the role of the professors in disseminating information to the students and shared responsibility for informing students about resources. Despite this, there was no comprehensive program of information literacy training at the university and some of the students may not have the opportunity to learn these skills. The student participants believed that they could research appropriately, but questioned their peers' ability to do the same. The students who had participated in library sessions said that although they could be boring, they were useful.

There was a sense that e-books were the way of the future, but that a combination of resources should be purchased for the library. The librarians indicated that user preferences would determine which types of resources would be purchased in the future.

Chapter 5: Discussion

This chapter will build on the Findings chapter by providing a discussion of how the results from this case study fit within Rogers' innovation-decision process. It will also provide responses to the main research questions used in the development of this study. Based on the findings, several practical recommendations will be provided.

Knowledge

In the first stage of the innovation-decision process, users became aware of the innovation. All of the participants in this study were aware that e-books were available at the university. They discovered e-books through their peers, professors, or on the library website. While all of the participants in this study indicated they knew about e-books, it is possible that other students and professors at the University of Ottawa had not yet reached this stage and were not aware of the fact that e-books were provided by the university library. According to Rogers (2003), "knowledge of the existence of an innovation can create a motivation to learn more about it and, ultimately, to adopt it" (p. 172). Information literacy training is a primary method that can be used to inform students about e-books; however not every student interviewed had participated in this type of session. Student D had not been in an information literacy training session at the university but indicated that this type of training could be beneficial: "So, it may be helpful for a lot of people to definitely get a presentation and learn a bit more about the resources that are available." Information literacy training will be discussed in greater detail later in this chapter, due to the fact that it also pertains to resource evaluation and the confirmation stage of the innovation-decision process.

E-book integration had progressed at the institution's library. Previously, e-books were not included in the main catalogue and users had to search for them explicitly. If users were unable to find the information in their library search, they either continued in the research process or specifically searched the library's e-book collections. Their complete integration in the main catalogue likely increased the number of users who had entered the knowledge stage of the innovation-decision process, as the result of their greater visibility. The literature review also supported the proposition that bibliographic records for e-books should be integrated into the public access catalogue for e-books to be successfully adopted (Diez & Bravo, 2009; Belanger, 2007; Blackwell, 2001; Connaway, 2001).

Additionally, the library's new catalogue was designed to more closely resemble Google search results. Specifically, one of the key changes was that a zero result was less likely to occur. With the release of the new catalogue, it is likely that e-books were returned in a greater number of searches, and therefore, their visibility was also increased.

Persuasion

In the persuasion stage of the innovation-decision process, the individual formed an opinion about the innovation. This stage can also be linked to the first research question in this case, which asked: How do students and faculty members in the Department of Communication at the University of Ottawa view e-books as an academic resource? The students and faculty regarded e-books equivalently to other resources. In terms of information use, both groups indicated that their primary concern was the quality of the resource rather than the format, although students were unsure whether all professors were comfortable with students using e-books. The professors were indifferent to their students' e-book use, regardless of their personal use preference. Due to the fact that the professors were

not typically concerned with the types of resources their students used, it was likely difficult for them to act as change agents or opinion leaders in this case. If they did not feel strongly about e-book use, and did not promote them directly to the students, they likely did not have a key role in persuading students to adopt e-books. Rogers indicated that individuals consider support in their innovation-decision process: “All innovations carry some degree of uncertainty for an individual, who is typically unsure of the new idea’s functioning and thus seeks social reinforcement from others of his or her attitude toward the innovation” (p. 175). Without this support from faculty members, students may have been less likely to be persuaded to adopt e-books.

Further, the professors may have been unaware if students used print or e-books, as the students indicated that they cited e-books the same way as print books rather than referencing the electronic format specifically. Similarly, while the university was able to access circulation data for print titles, they were not able to do the same for e-books. Accurate data detailing how many and which students were using e-books would be useful for determining the preferred format for collections development.

E-journals were also discussed during the interviews. Although individuals might have used their experiences with e-journals to aid them in their development of their initial opinion of e-books, participants perceived e-journals more positively than e-books and used them more frequently. Hernon et al. (2007) and Serotkin, Fitzgerald, and Balough (2005) also found that students preferred e-journals to e-books. This could be attributed to the fact that they had been available in the library for a longer period of time, were available in more standardized formats, and were shorter to read. Students also said they were more likely to print out and use e-journal articles than to use e-books, perhaps because many e-book

providers do not allow printing. Despite the fact that all of the users in this study had been sufficiently persuaded on at least one occasion to try e-books, they typically preferred to use print.

Decision and Implementation

Despite the lack of e-book use data, all of the respondents said they had decided to use e-books. They generally preferred to use print books for research, except when they required resources quickly or when no relevant print document was available. The decision and implementation stages could also be linked to the second research question, which was: What reasons do students and faculty members in the Department of Communication at the University of Ottawa provide for their decisions to use or not use e-books? The students looked for resources that were appropriate for their projects. It is also probable that the type of student who would voluntarily participate in this type of study might already be pre-disposed to using high quality, appropriate sources as compared to their peers. While they searched for the most appropriate information, the individualized nature of the advantages and disadvantages of the e-book format was found in both the literature review as well as the current research. For a visual overview of the perceived benefits of electronic and print books, please see Table 3, below.

Table 3

Advantages of Electronic and Print Book Formats

| E-books | Print Books |
|---|---|
| <ul style="list-style-type: none"> ▪ Easy to search for and within books ▪ Facilitates the location of specific information ▪ Cost | <ul style="list-style-type: none"> ▪ Emotional attachment: <ul style="list-style-type: none"> - Feel - Smell - Process of locating ▪ Easy to read |

When describing e-books, respondents acknowledged benefits but indicated their personal preference for print. This was linked to their emotional attachment to the paper book format. They described their appreciation for the feel of a book, the smell, how a print book can be used, and even the process of going to the library and physically looking for and using the book. Landoni and Hanlon (2007) also found an emotional connection with print books. There was something about the research and reading process that provided users with a feeling of connection with the resource that they did not describe with e-resources.

All of the participants had used e-books previously but they were still unsure about their feelings regarding e-books for the most part. Student A was clear in her preference for e-books but said “I can’t explain it but I just like having a physical book to flip through and highlight right in the margins as opposed to just looking off a screen.” Rogers also noted that innovations might lead to doubt among individuals: “A certain degree of uncertainty about the expected consequences of the innovation still exists for the typical individual at the implementation stage, even though the decision to adopt had been made previously” (2003, p. 179).

Instead, when students used e-resources for research, they indicated that it was solely to locate a piece of information. This was confirmed by indications that one of the benefits of e-books was the ability to easily search an entire book or library and locate specific information. This supported Appleton’s (2004) claim that students are fond of certain features of e-books such as keyword searching, but is contrary to Hernon et al. (2007), who indicated that students may not be aware of e-book features such as text searching. Overall, the students said that e-books were easy to use, but they simply preferred to use print books.

Participants viewed screen reading as a key disadvantage of e-books. Outside of the academic market, this issue seems to have been addressed by the proliferation of e-book readers. At the University of Ottawa, there was no promotion of e-book readers on the website and the librarians were unaware whether it would be possible to do so. There was also no indication that the library was working on allowing access on dedicated readers. When probed, one of the librarians stated that it is likely possible to access the content on an e-reader, provided it has an internet browser and Internet connection, but still seemed unsure. While none of the students interviewed had e-readers, their increasing popularity and the likelihood that other students do have access to such devices indicate that the librarians should explore access on e-readers further. It is therefore recommended that the library work to facilitate e-book access on e-readers. While some publishers may only offer restricted access, the library should be prepared to inform students when and if this option becomes available.

The cost of e-books compared to print books was also discussed. While several students acknowledged their appreciation of the financial savings associated with e-textbooks, others said they were willing to pay more for documents in print, if given the option. This view was also confirmed by Shiratuddin (2005). Further, one of the librarians feared students would pay for resources they were already entitled to through the library. While this is an issue in terms of cost-savings for students, it also indicated that increased communication between the librarians and the users may be required. The other issue was the cost relating to e-book procurement. While they may have a higher cost (either initially or because they have to remain in the budget perpetually), they eliminate other costs associated with processing. This was also confirmed in the literature review (Tripathi &

Jeevan, 2008; Armstrong et al., 2002). While librarians were not directly included in this research question, the findings pertaining to e-book procurement at the university obviously are relevant to the scope of this research and would be relevant to the examination of the case as a whole.

The students also indicated that they had used Google or Google Scholar, though typically only when they were unable to find documents at the library or when they needed information at the last minute. One of the students, however, said that he used Google and Google Scholar because he was unsure of how to access articles at the library, indicating that students may require additional instruction on how to use library resources. The librarians also mentioned Google and described how the new catalogue was designed to be more similar to Google, although none of the students mentioned the catalogue or having difficulties with it. In fact, one student mentioned that she found the limited results located within the catalogue less intimidating and easier to use, compared to Google, which influenced her decision of which resource type to use.

Students also said they liked e-resources for fact checking. Despite one librarian's claim that students were lazy when researching, several students indicated that they fact checked during their research process. The participants saw value in both formats and indicated that the library should purchase materials in a combination of formats in the future. It is therefore recommended that the library continue to purchase print books, in addition to e-books. This would allow clients to choose which types of resources they prefer.

In addition to fact-checking, credibility was also discussed by some participants. Several of the students mentioned issues of credibility, but none of the professors seemed concerned about the information students used. This may be attributed to the fact that the

types of courses offered within the Department of Communication may have been more open to less-academically reliable information than research in other disciplines. The librarians were unsure of whether the students were using credible sources for their research and how to teach students information literacy skills more effectively. Librarians said they have difficulty communicating with students without the professors facilitating the interactions. The students believed they used credible sources, but questioned their peers' ability to do the same. Additionally, the students seemed capable of completing research without assistance. One student noted that librarians offered help by explaining the website, which she felt most students would be able to navigate independently. Students may have been able to use the technology, but it remains unknown whether they are able to evaluate the quality or credibility of resources. This was demonstrated in the literature by Mulligan (2001) who said that students understand the utility of using computers for research, but need to be instructed on source evaluation. Students no longer need to be taught how to use search engines. They need to know how to sort and evaluate the considerable amount of material available to them. In order for the help offered by librarians and teacher to be meaningful, both parties need to be clear about what the difficulties are.

Confirmation

All of the participants in the study were at the confirmation stage in the innovation-decision process. They had all used e-books at some point but were unsure of whether to continue to use them in the future. They explained that e-books did have some advantages over print; however, they were not sufficiently beneficial to cause the users to completely discontinue using print books. They said e-books were easy to use and while they did not have access to the library's e-books on dedicated reading devices, they did all have a way of

accessing the e-books. Participants in all groups viewed e-books as the way of the future and hypothesized that their popularity would grow over time. They commented on increasing technology use among the younger generations; however, they perceived themselves to be either old-fashioned or having personal preferences for print which differed from the norm.

Despite the fact that all of the students had used e-books previously, some of the students were unsure about how their professors viewed e-books as a resource for research projects and this may have been problematic. Rogers noted: “During the confirmation stage, the individual wants supportive messages that will prevent dissonance from occurring” (p. 190). This may also have been a factor in their decision-making process in certain circumstances (i.e. when professors explicitly discouraged e-resource use).

This uncertainty might also have arisen from a lack of communication about resources and this leads to the third research question: How do students, faculty members, and librarians in the Department of Communication at the University of Ottawa communicate about resource availability? Overall, the interaction between these groups did not seem to be sufficient. In terms of responsibility within the institution for informing students of resources, the librarians claimed responsibility themselves. In contrast, students placed more responsibility on the professors, due to their increased communication with students. The professors also acknowledged that they filtered the bulk of the information to their students and saw it as a dual (librarian-professor) responsibility. While the librarians said they had limited interaction with students and admitted that students may not be fully aware of what is offered they did not indicate a desire to increase their communication with students.

The librarians were assigned to individual subject areas and either party could initiate communication. The librarians indicated that communication with professors occurred annually; however, this was not confirmed by the professors and suggested that this process is ineffectual. It is important to note that for the purposes of this study, various librarians at the university were interviewed, rather than solely communication librarian(s). The librarians themselves admitted that their communication with professors and students might have been insufficient. Bielema et al. (2005) also found that librarians may not have had adequate contact with students. An example of this came to light during the interviews: the librarians said students preferred e-books, but the students indicated a preference for print. The librarians also said they did not like reading on a screen or were not capable of reading the e-resources but failed to see this as an issue for students. This indicates that there may not have been sufficient contact between librarians and students. Additionally, there was no comprehensive program for information literacy training at the university, which further hindered communication between the three groups and may have led to differences between the subjects. The literature discussed how e-books could be updated easily; however, Ashcroft and Watts (2004) noted that without an effective communication process in place to inform users of the updates/version they are using, this may make issues more complicated. It is clear that such processes had not been developed at the university. It is therefore recommended that best-practices for librarian-professor-student communication be devised including minimum levels of librarian contact with professors and students.

One of the methods librarians used to interact directly with students was through information literacy sessions. When asked, the students indicated that they may not have been aware of all of the resources and services available at the library, but after becoming

familiar with the tools, they were able to do so easily. Students who had attended the sessions said they were useful, although boring and/or redundant if repeated. Consequently, it is recommended that the university develop an overall information literacy training plan. The potential duplication of skills training could be reduced with a plan that specified when and how students were provided with information literacy training. This could be done on a university-wide or departmental level. To increase the utility of these courses, skills from the session(s) could be integrated into course work to ensure students have understood and are able to apply the skills. One librarian said information literacy should be individualized. Students would also be able to link the assistance they received to its actual practical application.

The vast amount of information on the Internet, including e-books might mean that information literacy training may need to focus less on searching and technology use and more on developing analytical skills. For example, the students were aware that Wikipedia was not an appropriate source for academic research, but were confused about information found on search engines such as Google where the results contain a range of information types and sources that the students cannot evaluate easily. The popularity of these websites is increasing and they are unlikely to disappear in the foreseeable future. For this reason, librarians and professors should teach students how to use Internet resources advantageously. It is therefore recommended that information literacy initiatives are adapted to incorporate the use of new technologies and the results found when using these technologies.

Rogers stated that the relative advantage of new technologies was important in the diffusion process. In this case, the participants saw that the e-books had advantages when

they were compared to print, but their advantages were outweighed by their emotional attachment to print books. Further, rather than focusing on using the new technology, the respondents indicated that they were primarily concerned with using the highest quality resources available for their research projects. Rogers also described the role of change agents in *Diffusion of Innovations*. The librarians, and to a lesser extent the faculty members, acted as change agents in this case. They were able to influence students' perception of e-book as academic resources; however, if the library wants e-books to be used to their fullest potential, more communication would have to occur to convince other faculty members and students to use e-books more frequently.

Significance

This research has provided insight into e-book adoption in this academic library. Although this research was not designed to produce generalizable results, some of the implications of this study might be applicable to similar cases. Rogers stated that adoption involves a particular form of communication. In this way, this study contributes to both communication research as well as the theory presented in Rogers' *Diffusion of Innovations*. This research furthers the study of communication by exploring the way that an institution adopted a specific communication innovation: e-books. By examining the ways that students, faculty members, and librarians communicated about e-books and their use, this study has provided insight into both the spread of ideas and the adoption of a new technology within a particular social environment.

This research may be informative for those determining best practices for library collections development at the University of Ottawa, or other in similar cases. Additionally, an understanding of the flow of communication about e-books and other library resources

between students, faculty, and librarians was examined and could be beneficial to those developing procedures for disseminating information about resource use, as well as collections development.

The findings of this study also contribute to Rogers' *Diffusion of Innovations*. The participants were aware of e-books, but were still within the innovation-decision process. They were unsure of whether or not e-books should be fully adopted, primarily because they preferred print resources. Rogers indicated that even when the innovation had clear advantages, it was not necessarily diffused and adopted, and this was confirmed in this research. The participants recounted various benefits of e-books, but returned to their emotional attachment to print when describing their preference for and decisions to use the print format. Rogers described the importance of relative advantage in this type of situation:

Potential adopters want to know the degree to which a new idea is better than an existing practice. So relative advantage is often an important part of message content about an innovation. The exchange of such innovation information among peers lies at the heart of the diffusion process. (2003, p. 233)

In this case, the relative advantage of e-books was not sufficient for users to be willing to commit to using e-books exclusively. Rogers also indicated that the relative advantage of a new technology affects its rate of adoption and this was clearly a key consideration within this case. The users were all in the confirmation stage of the innovation-decision process, but it remains unclear whether the individuals in this study will eventually adopt e-books fully.

Limitations

This study was limited in several ways. Due to the anecdotal nature of the interviews, responses may not have accurately reflected the participants' actual behavior. For example, a

student may have considered him or herself to be an e-book user, but there was no way to assess the level of experience participants actually had with the technology. Additionally, the type of student who would volunteer to participate in a study on academic e-book use and information literacy likely also has more interest in the subject and possibly has spent a greater amount of time learning about the university's resources compared to their peers who did not participate in this study. To compensate for this, the researcher also examined university library documents to provide a more balanced examination of the case.

The solicitation of respondents from Access Service did not yield any respondents. One of the librarians indicated that although e-books should help individuals with visual impairments or learning disabilities, e-books have not yet reached their potential in these areas.

Additionally, the theory chosen to inform the framework of this study could not be applied wholly. Rogers (1962, 2003) described the overall rate of adoption within a particular system as well as specific adopter categories,⁷ based on how early or late they adopted the technology in comparison to the broader environment. Rogers described the adoption as taking the form of an S-shaped curve when on a graph, the steepness of which was dependent on the speed of diffusion. This aspect of the theory; however, could not be examined within this case, due to the small, exploratory nature of this study and the lack of statistical use data for e-books at the institution.

Summary

This chapter has discussed key implications of the case and provided links between the findings, innovation-decision process, and research questions. Users in this particular

⁷ "Adopter categories, the classifications of members of a social system on the basis of innovativeness, include: (1) innovators, (2) early adopters, (3) early majority, (4) late majority, and (5) laggards" (Rogers, 2003, p. 22).

case were able to decide which technology (print or electronic) they would use for each information source and for each project they completed. The students were aware that e-books were available and all of them had decided, on at least one occasion, to adopt the technology. Adoption of e-books by the participants was in the last stage of the process, confirmation, and the users were still unsure whether to use the e-books to their fullest potential.

Chapter 6: Conclusion

This research explored e-book adoption in an academic library. It provided an in-depth look into a specific case – the University of Ottawa Library. It gave an overview of the perceptions and use of e-books and communication about resources among students, faculty members, and librarians within the Department of Communication. The five-stage innovation-decision process outlined by Rogers in *Diffusion of Innovations* (1962; 2003) was used as a theoretical framework to inform the development of the case, as well as to understand e-book adoption more broadly. The case was described before the literature pertaining to each stage of the innovation-decision process of e-book adoption was reviewed. The literature demonstrated that for many users, print was still the preferred (and perhaps ideal) format for reading, despite the additional features e-books may have offered. A number of e-book readers with differing features and benefits have entered the market in the past several years. These readers, along with the evolving policies of the e-book providers have changed e-book use as well. The research demonstrated that librarians and faculty members also played a large role in influencing whether students used e-books. The changing nature of the type of information literacy instruction required by students as the result of new technology was also described in the literature review.

The findings regarding user preferences in the case were clear: the participants preferred to use print books. They gave various advantages and disadvantages of the e-book format, but preferred print, generally because of their emotional attachment to the format. Use of the library's e-books on e-readers was not facilitated by the library and users in this study did not typically have access to these types of devices; however, as they become more popular, libraries may need to try to provide access on these devices. Communication

between the librarians, faculty members, and students was not adequate and the lack of standardized information literacy training at the institution was a further hindrance to the communication between these groups. E-books were in some cases more expensive initially, compared to print books; however they required less processing to be integrated into the library system, as well as less maintenance. It is important that e-books are supported and promoted in the library because participants indicated that greater acceptance by others would also likely increase their own use of the e-books.

The decision to adopt or reject e-books as a resource has not been finalized within the case, and may never become fully required. If both print and electronic books remain available to users, the students, faculty members, and librarians will be able to continue to make their decisions independently.

E-books probably will not replace print books completely, at least in the foreseeable future. For this reason, libraries will still have to determine which resources to purchase and promote. Nelson (2008) stated: "Barriers to e-book adoption still exist, but signs point to this changing within the next two to five years. That, of course, has been said for most of the past 15 to 20 years, so we approach the future with a healthy dose of skepticism as we consider the implications of new e-book technologies" (p. 52). The future of e-books is still unclear. They will undoubtedly continue to evolve and libraries will need to respond to user requirements, including their information literacy training needs. As the younger generations of students become more accustomed to using new technologies in every aspect of their lives and reach university, greater acceptance of academic e-books among students may transpire naturally.

Areas for Future Study

Additional research could supplement the current project in numerous ways. An examination of the consequences of e-books specifically for students who use Access Service might be beneficial in understanding their unique needs. Additionally, similar studies could be conducted to understand issues of e-book use and communication in the other faculties. Further, an examination of e-readers in the university library specifically could help the university become aware of the challenges faced by students who own these devices and want to use them in the university setting. Research in all of the above-mentioned areas within other contexts would also be beneficial for understanding the complexities of e-book adoption in academic libraries.

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Appendices

Appendix A - Solicitation

Hello,

You are invited to participate in research conducted by Laura Bratanek, under the supervision of Prof. Rocci Luppicini, Ph.D. at the University of Ottawa.

The purpose of this research is to explore use and perception of e-book technology at the University of Ottawa. Interactions between students, faculty, and librarians will be examined to understand how students become aware of resources offered by the University of Ottawa.

Each participant will be asked to take part in one interview session that will take approximately 30-45 minutes. This interview will take place in English. The data that you provide will be kept confidential and anonymous. The data will be kept for five years after the completion of the thesis.

Your participation in this study will contribute to a better understanding of e-book use at the University of Ottawa. Your participation will also shed light on how students, faculty, and librarians communicate with each other about library resources.

Participation in this study is completely voluntary. If you initially wish to participate and change your mind, you will be able to remove yourself from this study. Only the researcher and supervisor will have access to the information you provide.

If you wish to participate or have any questions, please feel free to contact me.

Thank you,
Laura Bratanek

Appendix B – Consent Form

Case Study of E-book Use in a University Library:
A Communication Perspective

Researcher: Laura Bratanek
Department of Communication
Faculty of Graduate and Postdoctoral Studies
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Supervisor: Prof. Rocci Luppicini, Ph.D.
Department of Communication
Faculty of Graduate and Postdoctoral Studies
University of Ottawa

Invitation to Participate: I am invited to participate in the abovementioned research study conducted by Laura Bratanek and Prof. Rocci Luppicini, Ph.D.

Purpose of the Study: The purpose of the study is to explore the use and perception of e-book technology at the University of Ottawa. Interactions between students, faculty, and librarians will also be examined to understand how students become aware of library resources.

Participation: My participation will consist of attending one interview session for approximately 30-45 minutes during which I will be asked questions by the researcher about my use of e-books and library resources. The interviews have been scheduled for _____ (place), _____ (date), _____ (time).

Risks: My participation in this study will entail that I volunteer personal information and this may cause me to feel self-conscious about my use of library resources. I have received assurance from the researcher that every effort will be made to minimize these risks by keeping my participation in this research confidential and anonymous.

Benefits: My participation in this study will contribute to a better understanding of e-book use at the University of Ottawa. My participation will also shed light on how students, faculty, and librarians communicate with each other about library resources and may facilitate future interactions as well as e-book use.

Confidentiality and Anonymity: I have received assurance from the researcher that the information I will share will remain strictly confidential. I understand that the contents will be used only for the creation of a Master's thesis and that my confidentiality will be protected by the fact that only the researchers will have access to the data. Anonymity will be protected by the removal of any identifying characteristics from the data during the analysis and reporting stages.

Conservation of Data: The data collected, including tape recordings of interviews, electronic and print versions of transcripts, and electronic and print notes will be kept by the researcher in a secure manner. The electronic data will be stored on a USB drive and both the drive as well as the printed materials will be kept in the supervisor's office. Only the researcher and supervisor will have access to the data and it will be conserved for 5 years following the completion of the thesis.

Voluntary Participation: I am under no obligation to participate and if I choose to participate, I can withdraw from the study at any time and/or refuse to answer any questions, without suffering any negative consequences. If I choose to withdraw, all data gathered until the time of withdrawal will be deleted and/or destroyed.

Acceptance: I, _____, agree to participate in the above research study conducted by Laura Bratanek of the Department of Communication, Faculty of Graduate and Postdoctoral Studies, which is under the supervision of Prof. Rocci Luppisini, Ph.D.

If I have any questions about the study, I may contact the researcher or her supervisor.

If I have any questions regarding the ethical conduct of this study, I may contact the Protocol Officer for Ethics in Research, University of Ottawa.

There are two copies of the consent form, one of which is mine to keep.

Participant's signature:

Date:

Researcher's signature:

Date:

Appendix C – Interview Instruments**Interview Instrument - Student**

Remind participants that they may choose not to answer certain questions or cease participation at any time.

Tell me about your reading habits.

How much of a book do you read?

Have you ever used e-book(s)? Why/why not?

How did you locate the e-book(s)?

What did you like about the format?

What did you dislike about the format?

Describe how you typically find information for your academic work.

Have you ever used any other electronic sources for academic work? (i.e. e-journals, websites, ...)

How did you locate these sources?

What do you do when you have difficulty finding sources of information for your work?

How do you learn about resources that are offered by the University of Ottawa?

Have you requested help from a librarian for finding resources?

Have you requested help from a faculty member for finding resources?

Who is responsible within the university for ensuring that students have up to date information on available resources?

Do you think that the university should focus collections development on electronic, print, or a combination of materials?

Is there anything else you would like to add?

Interview Instrument – Faculty

Remind participants that they may choose not to answer certain questions or cease participation at any time.

Tell me about your reading habits.

How much of a book do you read?

Have you ever used an e-book(s)?

How did you locate the e-book(s)?

What did you like about the format?

What did you dislike about the format?

Do you have any preference for students' information gathering/sources used? Do you communicate these to students?

How do you inform students about information sources?

Do you provide guidelines to the students regarding sources they are able to use? If so, please describe.

Are you concerned about credibility and do you think your students can identify credible sources?

How do you learn about library holdings and the resources available?

Who is responsible within the university for ensuring that students have up to date information on available resources?

Do you think that collections development should focus on electronic, print, or a combination of materials?

Is there anything else you would like to add?

Interview Instrument – Librarian

Remind participants that they may choose not to answer certain questions or cease participation at any time.

Tell me about your reading habits.

How much of a book do you read?

Have you ever used an e-book(s)?

How did you locate the e-book(s)?

Which provider did you use?

Was it free or offered through the library?

How did you use the book?

What did you like about the format?

What did you dislike about the format?

Do you think they are easy to use?

Are there circumstances where you might be more willing to use an e-book?

How do you inform students about information sources?

How do you inform faculty about information sources?

Who is responsible within the university for ensuring that students have up to date information on available resources?

Do you think that collections development should focus on electronic, print, or a combination of materials?

Is there anything else you would like to add?

Appendix D – Library Documentation Reviewed

| Title | Location |
|---|---|
| Frequently asked questions about the new Catalogue | http://catalogue.bib.uottawa.ca/html/faq.jsp?language=en |
| How to Find Electronic Books | http://www.biblio.uottawa.ca/content-page.php?g=en&s=biblio&c=faq-typ-eb1 |
| Communication (Research Guide) | http://uottawa.ca.libguides.com/Communication-en |
| Services for Students | http://www.biblio.uottawa.ca/content-page.php?g=en&s=biblio&c=srv-stdt |
| Linking to full-text articles and e-books | http://www.biblio.uottawa.ca/wide-content-page.php?g=en&s=biblio&c=faq-links#books |
| Services for Professors | http://www.biblio.uottawa.ca/content-page.php?g=en&s=biblio&c=srv-prof |
| “Bringing Ideas and People Together” Strategic Directions 2004-2007 | http://www.biblio.uottawa.ca/content-page.php?g=en&s=biblio&c=abt-strategiq |
| What’s New! | http://www.biblio.uottawa.ca/content-page.php?g=en&s=biblio&c=abt-act-index |
| Digital Collections | http://www.biblio.uottawa.ca/content-page.php?g=en&s=biblio&c=abt-collections-num |
| Collections | http://www.biblio.uottawa.ca/content-page.php?g=en&s=biblio&c=abt-collections |
| Copyright and License Enforcement Policy for Electronic Resources | http://www.biblio.uottawa.ca/content-page.php?g=en&s=biblio&c=abt-ptq-copyn |
| Digital Collection Development Policy | http://www.biblio.uottawa.ca/content-page.php?g=en&s=biblio&c=abt-ptq-numeriq |

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| Policy On the Transition from Print to Online Journals | http://www.biblio.uottawa.ca/content-page.php?g=en&s=biblio&c=abt-ptq-trans |
| Annual Report 2003-2004 (PDF) | http://www.biblio.uottawa.ca/biblio/en/content/annual-report-2004.pdf |
| Annual Report 2004-2005 (PDF) | http://www.biblio.uottawa.ca/biblio/en/content/annual-report-2004.pdf |