

Seeking knowledge: An exploratory study of the Role of Social Networks in the adoption of Ebooks by historians

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ABSTRACT

Despite their initial slow diffusion in society, Ebooks have recently garnered renewed interest from academics as part of a move toward the digital humanities. To examine how humanists are adopting Ebooks, we focus on the first stage, the Knowledge Phase, of Rogers' model of the diffusion of innovations. Central to this stage is the study of adopter attitudes toward the innovation and the role played by social networks in the adoption process. Historians were selected as the population of study because of their close relationship to the printed book, both as a research tool and as an academic goal. Six semi-structured interviews were conducted with historians and then analyzed using a grounded theory approach. Our preliminary results show that historians had both positive and negative attitudes towards the Ebook. Often the same person showed eagerness and curiosity to adopt certain features of Ebooks whilst showing some degree of reluctance and skepticism. We identified the Role of the Social Network (RSN) as an important factor in the decision-making process of historians. Respondents frequently mentioned the subject specialist librarian for history as a key source of information. In addition, historians went not only to peers inside of the department, but also to friends and colleagues elsewhere when seeking advice on working with Ebooks. As Ebooks gain ground within academia, studies such as this, that focus on a single discipline, will be necessary to understand why scholars make the decision to adopt or reject. The study results found that subject librarians can act as change agents on the university campus. For this reason, the impact they have on the use of new technologies by academics needs further attention.

Keywords

Ebooks, historians, digital humanities, social network, innovation-diffusion, change-agent, academic library.

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INTRODUCTION

With the introduction of new prototypes such as the Kindle, the iPads 1 and 2, and the Sony Reader, Ebooks are experiencing a renewal of interest (Tonkin, 2010). Not only has the technology used to read Ebooks constantly changed and taken new shapes, the Ebook itself has undergone several transformations. Ebooks have experienced wide publicity with the creation of, for example, the Google Books Project, and the availability of Ebooks through university library online catalogues. With some academic libraries choosing to digitize their entire collections, the impact of the Ebook on scholars cannot be ignored. In addition, there has been a recent trend toward the digital humanities, with humanists embracing a wide range of digital tools to support their scholarship (Toms & O'Brien, 2008). As a result, it is important to examine the ways that Ebooks and Ereaders are being adopted by humanists for the purposes of research and teaching.

A review of the literature on the Ebook shows that its definition has been a major cause of ongoing confusion (Armstrong, Edwards, & Lonsdale, 2002; Lynch, 2001; Tedd, 2005). This arises from the need to separate the digital text from the device that is used to view it. Vassiliou and Rowley (2008), after careful analysis of the concept, proposed the following definition to create greater clarity: "An e-book is a digital object with textual and/or other content, which arises as a result of integrating the familiar concept of a book with features that can be provided in an electronic environment" (p. 363). This definition allows researchers to investigate Ebooks independently from the platform on which they are displayed.

Despite the recent interest in the digital humanities, there is a preconception in the literature that humanist scholars tend to be reluctant to adopt Ebooks and prefer working with familiar print formats. However, several recent studies have found humanists to be willing to experiment with new ways of accessing, storing, aggregating, and editing information that can facilitate their work (Barrett, 2005; Warwick, Terras, Galina, Huntington, & Pappa, 2008). Specifically looking at historians, previous studies have shown that they are quick to adopt new technologies that might facilitate their learning and research (Delgadoillo & Lynch, 1999).

Although there has been some research done on both Ebook use and the information-seeking habits of historians, no study so far follows the perceptions and actions of a single group of scholars. Past research on historians recognizes their close relationship with the book, and this, together with their positive relationship with the library, is the reason why we have chosen to focus on this select group of scholars. The research objectives of the study are:

1. To investigate the attitudes of historians toward Ebooks.
2. To understand the role of social networks in the adoption process.
3. To examine the perceived barriers by historians to Ebook adoption and use.

LITERATURE REVIEW

The Information Seeking Behavior of the Humanist

The information seeking habits of humanists have been studied in numerous articles. Barrett (2005) looks specifically at a group of humanities graduate students to examine the extent to which their information-seeking habits differ from those of faculty and undergraduate students. The findings show that graduate students shared a number of attributes with each group. On the one hand, graduate students were similar to faculty in that they used primary sources, relied on subject specialists, and started their searches haphazardly. On the other hand, graduate students were similar to undergraduate students in that they lacked personal collections of research material, relied heavily on guidance from supervisors, and made good use of 'electronic information technology' (Barrett, 2005).

Toms and O'Brien (2008) further support the notion that technology plays a key role in humanist scholarship. In a study of how humanists use electronic information technology for their scholarship, Toms and O'Brien's results indicated that humanists have specific needs unique to their work, including keyword searchable texts, scanning and browsing tools, hyperlinked texts and humanities-specific search engines (Toms & O'Brien, 2008). Tahir, Mahmood, and Shafique (2010) also surveyed humanists to find out how they use electronic information technology. Their results showed that humanists are becoming more accustomed to working with technology, with 69% of their respondents indicating no preference for either print or text formats and 21% and 10% having a preference for electronic and text formats, respectively.

Walton (2008) also uses comparative analysis and focuses his research directly on the Ebook. He discusses the contradiction between the high use of Ebooks indicated by library circulation records and the low satisfaction rates reported by users at the same institutions. Results of his study indicate that adoption rates at these universities are higher because the print versions of books are no longer being made available, forcing students and staff to use the electronic versions of books.

Studies of information-seeking behavior in the humanities often discuss groups of humanists in specific disciplines when presenting their results, but there are few studies that focus directly on a single discipline. It has been over a decade since Delgadillo and Lynch (1999) explored the historian's quest for information. They found that history scholars held the library in great esteem, found it useful to have a good relationship with their subject specialist librarian, and had a positive attitude towards technology. Duff and Johnson (2002) explored the historian's use of the archive through a series of semi-structured interviews and found, like Barrett's (2005) humanists, that the historian's information seeking habits were indeed haphazard. The authors conclude that two of the four activities that they determined historians went to the archive for—orientation to the archive using finding aids and searching for known material—would have benefitted from the process of digitization.

Overall, the articles on the information seeking behavior of humanists are united in their discussion of technology and ways in which it might enhance the research process. The findings of Delgadillo and Lynch (1999) and Duff and Johnson (2002) suggest that the historian's interest in technology is not a recent phenomenon. This paves the way for a more detailed examination of the use of specific technologies, such as the Ebook, in both historical research and in the classroom.

The Adoption of New Technology on Campus

There is a vast literature available on the adoption rates of various types of technology at universities. It is necessary to look at the way that technologies diffuse within a given population in order to understand how people perceive the technology, what barriers to adoption exist, and what segments of the given population are most likely to continue to use the technology. The classic work on the subject is *The Diffusion of Innovations* written by Everett Rogers (1983), who is repeatedly cited in studies looking at technology adoption (Brunson, 2008; Nicolle & Lou, 2008; Walton, 2008). We discuss his model of the innovation-decision process in more detail in the next section as the central theoretical framework guiding the present study.

Studies that look more generally at technology adoption in education have thus far primarily focused on the adoption rates of learning technologies by faculty. Patricia Rogers (1999) looked at barriers to technology adoption and included details about the Electronic Academy, an education system that aims to deliver bachelor's and master's degrees completely electronically within the Midwestern United States. In this study, adopters' attitudes and perceptions of the technology were most likely to become the largest barrier to adoption. Other barriers identified in the study included technological concerns (such as the availability of software or hardware), the financial support of the institution, and adequate technical support in the form of knowledgeable staff.

Almost a decade later, Nicolle and Lou (2008) conducted a mixed methods study to understand technology adoption by faculty. They found that peer and institutional support were most likely to improve adoption. A key finding of the study was that faculty do not feel they have adequate time and space to collaborate and consult with others in ways that could advance their knowledge and use of technology.

Two further studies explore the adoption rates of Ebooks more specifically. Brunson (2008) looks at student perceptions of the Ebook to determine why this technology has not taken over from the printed textbook, especially when the latter is perceived by users to be cumbersome and expensive. Barriers to Ebook adoption noted by Brunson include eye-strain, distractions available on their computer, and the lack of digital tools that allow users to manipulate the text. This last point is of great relevance when examining the diffusion of Ebooks within the humanities, as being able to interact flexibly with text is a key component of the work of humanists.

The largest barrier that Brunson (2008) believes Ebooks will have to overcome is tradition: students and society at large are accustomed to buying, browsing, and reading the printed text. Walton (2008) also finds tradition to be the seemingly insurmountable barrier for Ebooks. He notes that “Rogers indicates that the adoption of an innovation tends to be stymied when the innovation is incompatible with cultural values” (p. 31) and argues that this is a problem faced by the Ebook.

This notion of tradition is evident in much of the literature on the Ebook. Even the definition noted above involves the “familiar concept of the book” (Vassiliou & Rowley, 2008, p. 363) as a frame of reference. Many studies have indicated that humanists in particular express a great affection for the printed word (Carlock & Perry, 2008; Toms & O'Brien, 2008). Many of their practices and habits evolve around working with print materials. It is therefore necessary to examine if this barrier to the adoption of Ebooks is more likely to affect this group of users than others. Now that barriers, such as eye-strain and accessibility, are being eliminated by technological advances, are there ways in which Ebook publishers can try to overcome the obstacle of tradition? What features could help to improve this technology so that humanists, and historians in particular, would feel more comfortable with the Ebook?

In sum, the research into the adoption of technological innovations on campus suggests that collaboration amongst colleagues to provide information and support is useful during the adoption process. In addition, the literature specifically on the adoption of Ebooks shows that several barriers continue to exist to the adoption process, tradition being perhaps the most frequently discussed in the literature. Tradition is especially important to the scholarship and teaching of historians because the printed book is their primary research tool.

THEORETICAL FRAMEWORK

To describe what occurs when an individual makes a decision about the adoption of an innovation, Rogers (1983) examined the **innovation-decision process**. Figure 1 shows the five stages proposed in the model and how they are related.

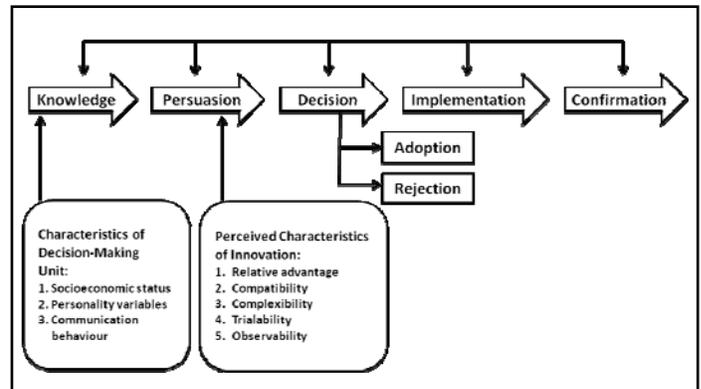


Figure 1. The innovation-decision process [Source: Rogers (1983)].

Past research has utilized Rogers’ classic work to define adoption rates and types of adopters (Nicolle & Lou, 2008; Walton, 2008). However, no study has looked at the adoption process systematically in the context of the humanities. Using Rogers’ model allows us to analyze the entire process of Ebook adoption from the moment a potential user becomes aware of the technology to their decision about whether to adopt or to reject it, to how they implement it, and finally confirmation of having made the correct decision or not. For the purpose of the present study, we only examine the knowledge stage because our intent was to gain an understanding of the perceptions of potential adopters when they first encountered the technology. This was important because Ebooks are not as yet widely diffused and therefore they provide a unique opportunity to study this phase within an academic setting.

In the knowledge stage an individual learns about an innovation for the first time and obtains information about how it works. Coleman, Katz, and Menzel (1966) found that information about an innovation was obtained quite by accident through conversations with peers, interactions with sales personnel, and exposure to the media. Individuals vary in terms of how receptive they are to information about technological innovations. Those individuals who have a need to solve a specific problem or want to accomplish a particular task are more receptive to obtaining information related to their need. Hence, individuals seek out messages that are in agreement with their interests, needs, and attitudes. This process of seeking out relevant information is referred to as selective exposure and shows how individuals may be exposed to the same information, but that they evaluate its relevance in different ways based on their needs.

There are three different kinds of knowledge relevant in the knowledge stage (Rogers, 1983):

a. Awareness knowledge initiates the process by making an individual aware of the existence of the technology and its potential adoption.

b. How-to knowledge emerges from the awareness of the innovation and explains how the innovation is used properly and in what settings it can be employed beneficially.

c. Principle knowledge encompasses an understanding of the mechanisms that lie behind an innovation.

Even though change agents are not depicted in the model in Figure 1, they are instrumental in all the stages, with their most central role being to make potential users aware of a technological innovation and to provide them with information that will help them to make an informed decision about whether to adopt or to reject the innovation. Rogers (1983) defines a change agent as “an individual who influences client innovation-decisions in a direction deemed desirable by a change agency” (p. 27). We will examine in our study the extent to which change agents are providing potential adopters with information on Ebooks and the kinds of information they are providing.

METHODOLOGY

The present study employed interviews as its data collection method. Six interviews lasting about 30 to 60 minutes were conducted with history professors and graduate students at institutions of higher education in South Western Ontario from October 2010 to May 2011. The preliminary results reported in the present paper are based on responses from six history professors, graduated students were excluded.

Data collection is ongoing and we plan to continue interviewing history scholars until we reach saturation in our most central themes. Saturation in qualitative research is reached when no additional insights are gained from new data (Corbin & Strauss, 2008).

All respondents participated in semi-structured interviews which were recorded on digital recording devices and later transcribed for coding.

The interview questions were intentionally left open-ended so that participants could describe their knowledge of Ebooks in their own terms. The interviews were semi-structured following an interview guide so that the interviewer was able to probe further into answers that opened new avenues for discussion (Berg, 2005). Interviews were structured as a conversation and the interview guide was only followed loosely to guarantee that all topics of relevance were covered. As the interviews progressed, some questions were added to the interview guide so that answers on certain subjects which the interviewer had not anticipated could be asked systematically across all respondents. Figure 2 shows an excerpt of the final interview guide employed.

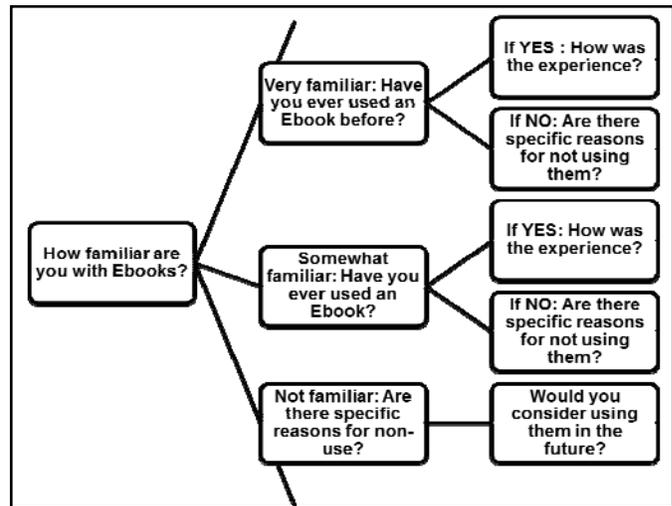


Figure 2. Sample view of interview guide.

We utilized grounded theory for the analysis of the data because it allows for the development of new insights based on the data itself. Taking into consideration that our data analysis was being informed by Rogers’ (1983) model of the diffusion of innovations, we chose the procedures outlined in Corbin and Strauss (2008; 1997). While in quantitative research data analysis is heavily driven by theory (Creswell, 2003), qualitative researchers usually reject the use of a theoretical framework. However, Corbin and Strauss are open to the use of theory to inform the data analysis process even in qualitative work: “If the researcher is building upon a program of research or wants to develop middle range theory, a previously identified theoretical framework can provide insight, direction, and a useful list of initial concepts” (2008, p. 40).

At the same time, Corbin and Strauss (2008) caution that researchers using previously established theoretical frameworks in their analysis need to remain open to gaining new insights from the data and for new concepts to emerge during coding. They stress that “[t]he importance of “remaining open” is essential even for experienced researchers working on their own program of research” (p. 40). In the current investigation it was important to start with Roger’s model because it provided the necessary terminology and structure to inform our interview guide and coding scheme. Hence, in this approach the coding developed as a synthesis of pre-established theoretical understandings and new insights gained from the data.

The creation of the coding scheme used to analyze the data was based on the premises and procedures put forth by Charmaz (2006). At the preliminary stage, we completed the two phases of coding: the first “an initial phase involving naming each word, line, or segment of data” and the second “a focused, selective phase that uses the most significant or frequent initial codes to sort, synthesize, integrate and organize large amounts of data” (Charmaz, 2006, p. 46).

The coding scheme was built upon the analytical framework developed by Rogers (1983) in the knowledge stage of his model of the innovation-decision process (see Figure 1). The two main areas of focus were: the attitude towards the technology based on user's needs and interests, and the role of the social network in increasing users' awareness and understanding of the Ebook. The resulting coding scheme enabled us to explore: 1) historians' awareness of Ebooks, 2) their attitude towards Ebooks, and 3) the areas of their scholarship and teaching that were being impacted by employing Ebooks.

Throughout the coding process, we followed Charmaz's (2006) approach to writing memos on the codes as they began to show themselves in multiple interviews. This was extremely useful for developing our preliminary findings and to define the codes by patterns that were shown by the participants in regards to their opinions about Ebooks. In the results section, we employ quotations from the interviews to illustrate the key findings.

Main Codes	Topics within Codes
Selective Exposure	<ol style="list-style-type: none"> 1. Already thinking about the technology 2. Knowledge via humanities interest 3. Baseline awareness
Attitude towards (Negative)	<ol style="list-style-type: none"> 1. Individual Ebook 2. Ebooks as a whole 3. Ebooks in education 4. Technology in general
Attitude towards (Positive)	<ol style="list-style-type: none"> 1. Individual Ebook 2. Ebooks as a whole 3. Ebooks in education 4. Technology in general
Areas Impacted	<ol style="list-style-type: none"> 1. Publishing 2. Research 3. Teaching 4. Leisure Reading

Figure 3. Example of coding scheme.

RESULTS

The Definition of the Ebook

After much discussion, we decided not to provide the participants with a definition of the Ebook prior to starting the interviews, as it might influence their thought process. Instead of providing any upfront information on Ebooks, the interview guide started with the question "How familiar are you with Ebooks?" This decision made it possible for us to understand what the participants thought of as Ebooks, whether it was the digital document itself, or the technology that was used to view it.

One of the participants did ask how we were defining an Ebook for the purpose of the study, revealing that he knew the difference between the Ebook and the Ereader, but was unsure how the present study was utilizing these terms:

P4 – yes... now do you distinguish between Ebooks and things that are available in text form on the Internet?

The other three participants all accepted the question for what it was, and answered that they were all relatively familiar with the Ebook. They all referred to the digital document in answering the initial interview questions, which is a sign that perhaps the confusion over the definition of the Ebook as indicated by earlier literature (Armstrong et al., 2002; Lynch, 2001; Tedd, 2005; Vassiliou & Rowley, 2008) is beginning to diminish.

After the initial two questions were answered by the participants, the interviewee cleared up any confusion by indicating that it was the digital document that was the concern of the interview, and not the Ereader, though these gadgets were often discussed during the interview as well.

It was interesting to note that one historian only considered the digital documents that were provided by his library as Ebooks. As the interview continued, he realized that the documents provided by Google Books, www.archive.org, etc., were also Ebooks, and also that he had quite a bit more to say on the topic than he originally thought.

Attitude towards technology

There were two prevailing attitudes toward Ebooks: one largely negative and the other positive. Participants could not simply be classified as having one or the other: often the participants showed both of these attitudes in the interviews, depending on what characteristics of the Ebook they were discussing.

Negative Attitude

There were four main factors which led to users having a negative attitude towards Ebooks.

The Availability Factor - As historians, it was expected that all of the participants would be concerned over the access to and availability of the documents that they work closely with on a daily basis. The apprehension over books being digitized, however, was not due to professors being unable to access works in a convenient manner, but instead focused on the way that the digitization (or lack thereof) of historical documents might impact the next generation of scholars in this field. They were concerned about specific documents becoming excluded as they were not digitized:

P1 - "There are some concerns..., we're never going to have a situation where every last document is on the web. If people confine themselves to what's on the web, there is a fear I think that this will... there's a potential for distortion because you know... what's easily accessible gets looked at and what isn't..."

The perceived lack of availability of specific online documents therefore had a negative effect on the use of Ebooks by historians. Historians will not readily adopt Ebooks until they know how to ensure that the documents they evaluate as relevant will be digitized and made readily available.

The Serendipity Factor - Ebooks and Ereaders are both convenient because they eliminate the need for the scholar to go directly to the library in search of documents, but what else is removed from the research process when this step is no longer necessary? One of the established beliefs in the field of history is in the serendipitous find (Delgado & Lynch, 1999). This occurs when the scholar goes directly to the shelves on which their resources are found, be it books, journals, magazines, or archival records, and comes across a source, other than the one they were searching for, that positively impacts their research. It became evident in the interviews that Ebooks create a fear amongst historians about the ways in which the convenience of this innovation might negatively impact their searching behavior:

P3 - "and I think it, uh, the big downside is that you lose the likelihood of finding material by serendipity that you weren't looking for which is a huge thing that you get by shelf reading, which I still do, and having to browse through a book, the old fashioned way. Because oftentimes I find that things aren't called what you would expect them to be called, so there's not an easy way to do a keyword search, so you... I'm sure that they will miss things that the old fashioned way would have picked up."

For scholars that rely largely on books as primary and secondary materials, the one key resource that they might encounter as a serendipitous find could change the outcome of their research significantly. If they feel that they are at a disadvantage when using the technology, historians are unlikely to adopt this tool into their scholarship.

The Cost Factor - There are significant costs associated with the tools used to view Ebooks. The professors needed more information to ensure that they were not inflicting a further financial burden on their students:

P2 - "There are students here that don't have money, and you know, do you want to put an extra burden on them?"

The participants wanted all of their students to have equal access to the material for their classes, and felt that it was unfair for the students to be asked to purchase a new tool specifically to read these documents.

The Tradition Factor - Going to the stacks in search of material is not the only way in which these historians viewed themselves as traditionalists. The transition to the Ebook for the purposes of their research was often only a last resort, occurring if they were writing late at night and forgot a source they needed, or if they knew exactly what they were searching for and wanted to obtain that specific information. When it came to reading Ebooks on their

screens, the participants felt they were unlikely to ever read an entire Ebook as they would the physical copy, which they perceived as having attributes that benefited their scholarship:

P3 - "in terms of personal use, pleasure reading. I have to say I'm still a bit of an old dog. I still like the physical copy, so I'm not quite there yet. I can't say that I wouldn't get there, because I'm using it in my work capacity, but personally I'm not using it yet."

In order for an innovation to be accepted, it has to be perceived as better than the tool that it is replacing. As the participants indicated a preference for the traditional print book, this would be a major factor in delaying use of this new technology.

Positive Attitude

There were also three main factors about Ebooks which the historians were positive about:

Accessibility Factor - The participants were drawn to using the library portal to access Ebooks, and found that there was little trouble finding what they needed through the links provided by their home institution:

P4 - "I was surprised how easy it was, I find that the library here is making it easier and easier for us to access material."

Many of the participants had used Ebooks through the library portal without the original intention to do so, and indicated that they would do so again because of the ease.

Teaching Innovations - The participants were quite eager to use these tools when they were likely to have a positive impact on their teaching. For example, by using Ebooks on a course syllabus they made their texts available to a wider number of students:

P4 - "As an instructor I think this is incredibly valuable for assigning readings to students because that means there isn't one copy that 20 students are fighting over."

As Ebooks were likely to benefit both the students (who no longer had to go in search of their texts) and the professors (who no longer had to worry about student access to these texts), this is one area that this technology was likely to be implemented.

Research Practices - The participants may have known about Ebooks for some time, but they only recently have considered adopting them into their teaching and research. They believed Ebooks could benefit their own research, and were eager to develop their skills in this area:

P1 - "Even though I've known about them for quite a while, I've only just recently, and I would say in relation to a course that I'm putting together right at the moment, really begun to explore the way in which they might be useful in my teaching, and more importantly in my own research."

The participants in this study were likely to use the Ebook when it was convenient to them. If the Ebook advanced the speed or accuracy of their work and facilitated their research they would likely implement it on a more regular basis.

In sum, the participants were, for the most part, only in the beginning stages of Ebook use: they were aware that they existed but had not implemented their use for anything other than browsing books online. The idea that most intrigued the participants was that they would be able to access out-of-print books that would have previously required travel to access. With the exception of the tradition factor, each of the negative attitudes to Ebook adoption could be overcome with technological advances. We will likely see continual growth of Ebooks and new ways in which they can be aggregated, as well as a reduction in cost of Ereaders as these technologies become integrated into the marketplace. The tradition factor, or the preference for the printed book, will be a difficult barrier to overcome, especially amongst historians, who work closely with texts.

The Role of the Social Network (RSN)

Rogers' model of the innovation-decision process accounts for two communication channels through which change is implemented during the knowledge phase of a new innovation. The first of these is *Mass Media Channels*, which Rogers (1983) defines as "all those means of transmitting messages which involve a mass medium, such as radio, television, newspapers, and so on, which enable a source of one or a few individuals to reach an audience of many" (p. 18). There are numerous examples of ways in which this type of communication channel affects the interview participants, but none as obvious as the Internet.

Whether it was through the university library website or by using a common Internet search engine, the first experiences that the participants had with Ebooks were often quite by chance.

P3 – "I can say personally, from my experience, that I didn't know it was available, it was just dumb luck on my part that the book I was looking for happened to be available as part of the Ebook collection."

In this case, the university library website of one of the institutions provided a link to an Ebook in its online catalog that the participant would have otherwise been unaware of. Although the library website of this institution has other pages dedicated to Ebooks as a resource, none of the participants mentioned finding out about this innovation in this way. The librarians who were responsible for the integration of Ebooks into the online catalog were therefore the primary means by which the participants learned about this innovation, and this discovery would not have been possible without the Mass Media Channel of the Internet. Hence, the Internet through the online catalog indirectly linked academic librarians to patrons.

The Internet search engine was the other method commonly used to access Ebooks. Google was named by *all* six historians when they were talking about ways that they accessed Ebooks, or as a place that they went to search for out of print resources. One professor even expressed her preference for the search engine, implying that it offers a broader list of results than the library portal might:

P1 – "at the moment I just go to Google and I assume that that catches most of what's out there."

The fact that the same company that created this search engine is also responsible for the world's largest digitization project to date is a likely reason that it is so commonly associated with Ebooks. The Internet has become seamlessly integrated into scholars' daily routines, and as a result it is also a source of information about their work. For the participants, the Internet provided them with the opportunity to learn about Ebooks.

The second communication channel, the *Interpersonal Channel*, involves a face-to-face exchange between individuals who often know each other and, according to Rogers (1983), is more effective in persuading an individual to accept an innovation. This form of communication was very influential in creating change amongst the participants, and there were several different segments of the social network that could be perceived as change agents in the adoption of Ebooks. Friends, co-workers, students, and librarians all played a role in increasing the participants' knowledge of Ebooks, and feeding them information that helps make a decision about whether to test, adopt, or outright reject the technology.

Friends and co-workers acted as change-agents, often directly outlining and demonstrating the features of an Ebook as a means to showcase its advantages. The name of one professor who is renowned for his technological know-how came up in two of the interviews, and had actually persuaded one of the participants to purchase an Ereader.

P1 – "I've talked to probably the person in our department who's most knowledgeable about this, and also to someone else I know that is using a Kindle, and between the two of them they've persuaded me and what I've been able to see myself that this really would be a useful tool."

Rogers (1983) notes that people are more likely to be persuaded to adopt a technology by their peers: people with whom they share the same interests, attributes, and social status. The participants in this study support this notion, often having their interest about Ebooks peaked by friends or co-workers, and also sharing information about ways of accessing and using Ebooks in scholarship and teaching.

P4 – "I've seen [Ebooks], but only to look at them as a curiosity. I've never purchased one, and I've never had something published as an Ebook, I've only ever looked at them when someone's said, "hey, I've got this new thing, look at it, I can read a book on it" that's about it."

The subject specialist librarian would also belong to the group of co-workers, and is perhaps closest to the role of change agent as discussed by Rogers (1983). Librarians have common interests with historians, and the subject specialist at one of the institutions was named frequently as a source of information and held in high esteem by the interviewers. The role librarians is slightly different than that of other co-workers, however, because they are the individuals on which the participants will rely for information about this technology and how it is being integrated into the institutional resources. Although they might hear about Ebooks from their friends or co-workers, it is likely that any questions they have that relate directly to using Ebooks for their research would be addressed to the librarian. The call for a workshop about Ebooks organized by the library was one way in which this was made obvious. One participant wanted the librarian to tell historians how other faculties were making use of Ebooks so that they might learn to benefit in the same way:

P3 – *“I think a workshop is one of the better... or at least a presentation to actually show us, not only how to use it, cause that’s easy to do but more to think about using it in different ways because right now I’m using it just as an alternative form of something I’ve always been doing so I need resources to write a lecture or for an assignment for students, I’m just seeing it available in a different format. I love historians to think about being outside of the box—and maybe librarians, because they work with so many other disciplines, can say ‘have u thought about ___?’ since the Dept of Philosophy or the Dept of Sociology has thought about using them in this way.”*

Librarians, then, were seen as a go-between—the gatekeepers—for the various flows of information that encapsulate a university. In their role as information professionals, librarians provide information about new technologies on a university campus and attempt to understand the needs of their users by employing both types of communication channels—Mass Media and Interpersonal—in their role as change agents.

There is one final group of people who were not originally thought of as change agents in the process of technology adoption on campus, but who seemed to come up time and again in the interviews as having a direct impact on the professors’ desire to adopt Ebooks as an innovation: the students. Although the students do not actively try to persuade the professors to adopt Ebooks or Ereaders into their classrooms, the perception that students enjoy everything that is digital and are far ahead of the technological learning curve has an impact on the way that professors think of the Ebook. The technological changes that the participants have witnessed since beginning their careers were often mentioned, and it was assumed that Ebooks were likely to be preferred by students as they are considered digital natives because of their inclination towards digital media:

P2 - *“... anything electronic why not? The students live there anyways, they’re doing this stuff all the time.”*

Many of the participants already provided access to journal articles on their course syllabi, and believed it was likely that Ebooks could be used in much the same way in the near future. The digitalization of journal articles was something that the participants were comfortable with, and they seemed to believe that their students were as well:

P3 - *“all the articles, almost across the board, are available digitally or I digitize them and put them on WebCT. So I think transitioning to an Ebook would be seamless, I don’t think the students would mind.”*

It was interesting that all of the participants who thought that students would be likely to adjust quickly to Ebooks and even prefer them as a means of accessing course material were those who had not yet used Ebooks on a syllabus or had not yet received any feedback on their decision to do so. One participant was using Ebooks on a syllabus for the first time when the interview occurred, and it would be interesting to obtain the students’ opinions about their satisfaction with the use of Ebooks in the classroom. There could potentially be a great difference between what the students actually need and what their needs are as perceived by professors, and even by librarians. The missing link here appears to be the face-to-face meeting between students and the other groups that are helping the Ebook to diffuse within academia. Changes might occur when students are allocated a more active role in the decision making process surrounding the adoption of Ebooks in the classroom.

DISCUSSION

The six historians interviewed were all in Rogers’ knowledge stage in the adoption of Ebooks. All but one of them had used Ebooks for either research or teaching, and all of them were aware of the ways that this innovation could work to their advantage. As potential adopters, they were being influenced by both Mass Media (e.g., library websites, email, and Internet) and Interpersonal channels of communication (e.g., peers, coworkers, librarians, and students). The role of the librarian in advancing Ebook technology was observed from very early on by Lynch (1999), who noted that libraries had to be concerned about privacy, perpetual access, and the incorporation of Ebooks into existing collections. In addition to these concepts, academic librarians are now faced with changing times and with new roles to play. This not only includes the organization of Ebook collections, but also providing awareness, how-to, and principle knowledge to patrons about Ebooks, how they are being integrated into existing collections, and how to best use Ebooks for scholarship and teaching. The revolution in information and communication technologies “has enhanced the role of librarians as intermediaries” and even the solitary humanist may find that they need a librarian help to overcome the information overload (Tahir et al., 2010).

The original intention of this study was to examine the role of social networks in the process of Ebook adoption. The preliminary results suggest that several groups influence the adoption. The role of academic librarians seems particularly relevant as they are intermediaries, gatekeepers when it comes to implementing new technology at universities and act as change agents, which is an important and necessary role in the diffusion of innovations (Rogers, 1983).

This role of the librarians became evident in the interviews in two distinct ways. First, they participated in Interpersonal channels of communication by meeting directly with the interview participants and by making them aware in meetings or by email of the tools that the library has available. Second, they create and update the library website, integrating Ebooks into the online catalog and therefore facilitating user access to this innovation through a Mass Media channel.

Other interesting observations that were derived from this study were the interactions between different groups of individuals and the way that they influenced each other in terms of the adoption of Ebooks. Even though librarians played a primary role in the diffusion of Ebooks amongst historians, there were other groups that encouraged the flow of information that surrounded this technology. This information flow resulted in a series of connections between librarians, professors, and students that formed around the idea of Ebook adoption.

The observations surrounding communication about the adoption of Ebooks demonstrated that there were a number of sources of information (other than the library) that the participants relied on to help them understand this innovation. Figure 4 helps to explain how these components interact. The Mass Media channel is the overarching mechanism by which the participants involved in this study were first exposed to, and continue to learn about, Ebooks.

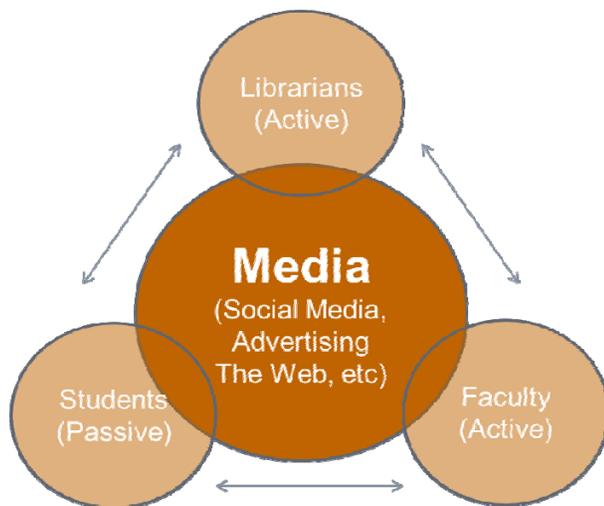


Figure 4. The Role of Social Networks (RSN) in the adoption of the Ebook by historians.

Librarians and faculty play an *active* role in learning about Ebooks from one another as co-workers and peers, while students play a *passive* role in pushing the faculty and the librarians to think about what might be best for them, even though they do not seem to directly provide input to either of these groups about the innovation.

We found that librarians and historians were actively participating in the choice of whether or not the institution should adopt Ebooks as a research and teaching tool. Historians asked that librarians offer a workshop so that they might learn different ways of using this innovation, as well as to make sure they were aware of all the possible Ebooks to which the library can provide access. The relationship between these two groups was *reciprocal*: librarians could give their knowledge about the innovation, thus positively influencing the historians' attitude about the technology, and the historians could let the librarians know what they were looking for in terms of types and genres of Ebooks, thus making sure the library was facilitating access to the Ebooks that were most likely to be used.

The students, however, were another matter altogether. The participants all seemed to believe that the students were likely to use Ebooks, as they were already part of the digital age, and would feel comfortable with this technology. The desire for the traditional printed book, they implied, would have passed this younger generation by.

The possible discrepancy between what professors think about their students' opinions on technology and Ebooks and what the students might actually want as learning tools needs to be explored in future studies. It appears as though students are only passively playing a role in the groups of adopters surrounding the Ebook. Considering they are the ones that perhaps have the most to gain (or lose) if this innovation takes over from the printed book, it would seem as if this is quite an oversight as far as the other two groups, as change agents and potential adopters, are concerned.

One suggestion for remedying this oversight would be to create a *community of practice* surrounding Ebooks much like the one suggested by Nicolle and You (2008), who noted the importance of both peer and institutional support in terms of technology adoption on university campuses. The addition of students as active participants in the community of practice as outlined in Figure 4 would result in a closer and more collaborative relationship between change agents and potential adopters of Ebooks.

Each group would be able to benefit from the knowledge and insight put forth by the others, and each would realize the others true needs, as opposed to simply assuming that they know the other group's requirements. Before this change can be implemented, however, further research needs to be done into the students themselves, in order to find out where they gain their information regarding Ebooks from, and to ascertain whether or not they would be willing to actively participate in a community of practice to deliberate the adoption or rejection of the Ebook.

In conclusion, this research contributes to the understanding of academic skill development in three ways. First, it examines how faculty are acquiring the skills needed to enhance their research and teaching through digital media in the context of the information society. Second, it shows the importance of forming a community of practice to create awareness and provide information about new technologies as they are adopted by members of the academic community. Third, the Role of Social Networks (RSN) model developed in this study will provide guidelines for the general adoption of Ebooks in society as well as for the adoption of future digital tools in academia. These findings will provide important insights not only for scholars interested in theories of technology adoption and use, but for practitioners, information technology companies, policy makers, and university administrators who make decisions about resource allocation (e.g., collection development, training, and skill development), instruction, and tool development. The proposed Role of Social Networks (RSN) model is intended to benefit all academic libraries as well as university administrators by providing a basis on which to investigate adoption and implementation of future technologies in academic environments.

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