
E-Texts in Research Projects in the Humanities

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Abstract

This research paper explores the roles of electronic texts in research projects in the humanities and seeks to deepen the understanding of the nature of scholars' engagement with e-texts. The study used qualitative methodology to explore engagement of scholars in literary and historical studies with primary materials in electronic form (i.e., e-texts). The study revealed a range of scholars' interactions with e-texts during the whole research process. It uncovered a particular pattern of information-seeking practices in electronic environments called *metchaining* and the main types of uses and contributions of e-texts to research projects. It was found that e-texts play *support* and *substantive* roles in the research process. A number of influences from electronic environment are identified as challenges and aids in working with e-texts. The study does not have statistical significance. It indicates a need for further research into scholarly practices, training requirements, and new forms of service provision. Study results are relevant for the development of digital collections, information services, educational programs, and other forms of support for the use of technology in research. The results can be also used to inform approaches to text encoding and development of electronic information systems and have implications for organizational and industry policies. The study found a range of scholars' interactions and forms of intellectual engagement with e-texts that were not documented and analyzed by earlier studies. It provides insights into disciplinary variations in the humanities and contributes to the understanding of scholarly change catalyzed by information technology.

I. Introduction

A great emphasis on knowledge and learning in contemporary industrialized societies is associated with a dramatic impact of information and communication technology (ICT) on knowledge acquisition, production, and sharing. Text and ICT, as key entities in information and knowledge cycles, have been brought together in the composition of electronic text.

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Changes in technologies for presenting and transmitting text are associated with significant cultural transformations. The print revolution is often mentioned in relation to far-reaching changes brought about by computer technologies. This common comparison signifies that the shift in production and transmission of text is a central part of the perceived revolution. Libraries as traditional book repositories are at the center of this transformation. Considering that a library is often described as “humanists laboratory,” changes in the way these academics work have important implications for research libraries.

Text is fundamental for scholarship in the humanities, which is based on studying recorded texts and reflecting on their nature. McGann (1998, p. 609), a humanist scholar, wrote, “Textual studies is ground zero of everything we do. We read, we write, we think in a textual condition. Because that is true, the new information and media technologies go to the core of our work.” One of the central questions related to effects of ICTs on scholarship in the humanities concerns the effect of electronic text on the way in which scholars think about and work with text. The potential importance of investigating interactions of humanists with e-texts has been recognized by a number of authors. Brockman *et al.* (2001) noted that

[e]lectronic texts are potentially the most radical element in the construction of the evolving technology environment in the humanities. The explosion of electronic texts promises to alter the way in which scholars conceive of the activity of research in a way paralleled only by similarly major developments in the history of printing. (p. 30)

Although text has a central position in our culture in general and scholarship in the humanities in particular, very few studies to date have focused on the use of e-texts. Those that did usually investigated the use of a particular database or an archive.

In an attempt to uncover a part of the change that involves people, text, and technology, this study into the roles of e-texts focused on academic researchers in literary and historical studies, because they are known for their intense use of textual sources. These scholars have a long tradition of engagement with text in various forms from all periods, and therefore, they are in a position to reflect on recent changes. In modern academia, literary studies include traditional historical, critical, and theoretical research as well as creative writing, all of which provide possible access to changes in creative and analytical approaches to e-text.

This chapter has the following parts:

- *ICT in the humanities*: Background of ICT adoption, and adoption and applications of e-texts in the humanities.
- *Methodology*: The study’s design and research methods.

- *Interactions with e-texts*: A range of issues and activities related to working with e-texts, namely:
 - *Defining electronic text* provides a background for defining electronic texts and considers how study participants perceived e-texts.
 - *Interactions with selected e-texts* considers issues of reading and how scholars in the study worked with oral texts, personal digital collections and databases.
 - *Information seeking in electronic environment* looks into seeking behaviors and focuses on netchaining as a particular pattern of information practices which emerged from the study.
 - *Investigation of the research topic* considers how scholars used e-texts to aid their intellectual engagement with their research. Core aspects of e-text functionality are also considered in this section.
 - *E-texts and writing* are about influences of work in electronic environments and interactions with e-texts on writing techniques, styles, and genres.
 - *Experience of working with e-texts* considers participants' thoughts and feelings associated with interactions with e-texts.
- *E-text in the research process*: Interactions with e-texts in research stages, the main types of uses of e-texts, and their contributions to research projects and the two main roles that e-texts play in the research process.
- *Challenges and aids in the electronic environment*: Factors that aid interactions with e-texts or act as obstacles.
- *Implications for academic libraries*: Implications of humanists' engagement with e-texts for services and academic libraries.

II. Information and Communication Technology in the Humanities

Scholars in the humanities have appeared to be on the margins of technological changes for a long time, but a short historical overview in this section outlines significant transformations in scholars' practices in the past three decades.

A. Adoption of ICT

Humanists were initially slow and reluctant adopters of new technologies, and even when they used computers, it was mainly for word processing. Stieg (1981) noted that most historians ignored computers, whereas Stone (1982) observed that "the impression is given at times of humanists as rather inadequate individuals unable to face up to technological change" (p. 300). Humanists' needs for a wide range of materials and finding aids, as well flexible searching across full-text documents, made the first databases of bibliographic records of limited use.

As digitization projects provided a constantly growing number of documents and finding aids online, electronic collections became increasingly

useful. Dalton and Charnigo (2004) followed up Stieg's study and found an increased use of electronic catalogs and indexes to identify sources of information. Electronic bibliographic tools and reference works became a preferred format (Palmer and Cragin, 2008; Summerfield *et al.*, 2000). A study of Jewish studies scholars found that while they had positive attitudes adopting technology, they had reservations when a technology or source could not support their needs (Baruchson-Arbib and Bronstein, 2007). Despite limited availability of materials and lack of technologies responsive to humanists' needs, these scholars have made extensive use of electronic sources (Brockman *et al.*, 2001; The British Academy, 2005), usually for "tried, tested, and somewhat traditional research functions" (Greenstein in Brockman, *et al.*, 2001, p. vi).

Technological advancements over the past three decades have made ICT more suitable and acceptable for humanists. Although hard copy books and primary materials remain important, some digital tools and sources have replaced their analog counterparts. At the same time, problems related to access, availability of sources, technical limitations, and scholars' knowledge remain an impediment to the adoption of digital technologies.

B. Applications and Adoption of E-Texts

The provision of text in adequate electronic form is crucial for the qualitatively new employment of technologies in the humanities. The first attempts to apply computer technology to the humanities in the middle of the 20th century, and consequent advancements in digital humanities research, were based on work with text. The appearance of personal computers in the 1980s and widespread use of the Internet in the 1990s were significant developments that brought computers to humanities scholars. Major developments of scholarly text in electronic form was enabled by the development of the World Wide Web, SGML (Standard Generalized Markup Language)—a metalanguage for defining methods of representing texts in electronic form, and TEI (Text Encoding Initiative)—a system for encoding text (Hockey, 2004; Ide and Veronis, 1995). Advancements in digital imaging in the 1990s have also contributed to provision of pictorial resources in conjunction with electronic texts.

Word and concept retrieval across full texts, multiple uses of a text, integration of resources, and flexible and remote access are some of the developments associated with electronic texts, which directly address a variety of researchers information needs.

1. E-Text Applications in Digital Scholarship

Different ways of using ICT in research affect scholarship, but digital scholarship relates to uses that directly influence knowledge production. Digital scholarship in the humanities has become more elaborate in recent years and now refers to several related forms:

- a. building a digital collection of information for further study and analysis;
- b. creating appropriate tools for collection-building;
- c. creating appropriate tools for the analysis and study of collections;
- d. using digital collections and analytical tools to generate new knowledge, interpretation, understanding; and
- e. creating authoring tools for presenting these new ideas, either in traditional forms or in digital form (American Council of Learned Societies, 2006, p. 10).

This report identified (d) “as the core meaning and ultimate objective of digital scholarship” (p. 10). The main uses of e-texts in the humanities are based on the text retrieval and analysis. The prominent areas of e-text applications are as follows:

1. concordances and text retrieval programs for text-analysis;
2. dictionaries and lexical databases;
3. literary and linguistic analysis;
4. stylometry and attribution studies;
5. electronic editions and archives (points 1–5 based on Hockey, 2000); and
6. digitally born literature and media art.

The last point was added by the author in response to a growing interest and advances in electronic literature and art. The value of electronic editions for textual criticism and a wide multipurpose use has been discussed more often than any other application of electronic texts. Electronic editions and archives can provide large amounts of dispersed materials, different versions of the text, images of originals, and scholarly annotations as well as links to context-building information. The presentation of e-texts includes specialized services such as presentation of text in different languages, an option to reconfigure the same materials for different purposes, and online help and contact details for enquiries. Many advantages of working with e-texts arise from the speed of processing. Hockey (2000) pointed out that work that had taken years and decades in traditional ways could be performed more accurately in a matter of minutes or even seconds.

Although e-texts may have a great potential for scholarship, it appears that they have not been widely accepted. Palmer (2005) said that the effects of interrogation of the full-text corpora were appreciated in literary,

linguistic, and cultural fields where these interrogations guided formulation of research questions, interpretation, and textual analysis, but these methods were not widespread. Hockey (2000) suggested that the reluctance of scholars to adopt these methods had been based on a perception that they are alien to the nature of the humanities research.

2. Adoption of E-Text

In the first decades of humanities computing, advancements in e-text development were not readily accepted outside of a rather small group of scholars who worked in this field. Olsen (1993, p. 309) wrote that “the role of electronic text in literary research remains surprisingly limited” and presented an overview of relevant literature as evidence.

A number of editing and digitization projects since the 1990s provided a base of e-texts that made their way into mainstream research. Studies indicated a growing, but uneven adoption in use. In a study by Wiberley and Jones (2000), only two of thirteen participants used primary materials in e-form. Summerfield *et al.* (2000) found that monographs and texts for the humanities were not heavily used, but usage had been growing. Users usually browsed books online, printed them for reading, and searched them to find a quotation or a citation. Scholars in Massey-Burzio’s (1999) study did not respond enthusiastically to technological advancements, but their view of full-text databases was very positive.

Searching provides a critically important functionality. Few participants in the study conducted by Brockman *et al.* (2001) used full-text databases but those who did were very satisfied with them, particularly with the products that provided access to primary materials: “The thoroughness with which searching is possible across any of the corpora covered by these databases means that once they have been recognized by a group of researchers in a particular field, their use is obligatory” (p. 16). Davies (1997, p. 387) found that the way “computers can ‘crunch’ through texts, comparing usage of given words or idioms, has completely altered the questions which humanists can ask.” Similarly, scholars in American literature valued searchable texts because they allowed them to make “intellectual connections that were previously impractical, if not impossible” (Brogan and Rentfrow, 2005, p. 21).

The ease of searching allows students to ask questions by interacting with e-texts that were once answered only by reading and experience (Ruhleder, 1995, p. 49). Cherry and Duff (2002) studied the use of *Early Canadiana* in research and teaching and found that the main advantages of it were access to remote and dispersed materials, the convenience of working from one’s own office and searchability.

The main obstacles to engagement with e-texts were lack of trust in the scholarly standards of electronic collections, the availability of materials with contextual details, and the lack of direct access to sources. Researchers in the humanities did not think that a critical mass of relevant materials was available (RULOIS, 2002). This study found that scholars were very interested in e-texts of manuscripts and primary documents, but the tradition of physical contact with objects and manuscripts was found to be important. Andersen (1996) noted that historians needed to check original primary sources, even when they were found in a print version.

A study of e-book use (Levine-Clark, 2007) showed that the acceptance of e-books varied among humanistic disciplines. Historians consistently preferred print, while almost a third of participants in languages and literatures had a preference for electronic form.

Many questions and assumptions about nonuse, disciplinary differences, and the way in which e-texts are used have not been clarified. The majority of studies aforementioned asked questions about e-text use as part of a broader investigation of other issues. A small number of studies surveyed users of a particular collection of primary materials (Cherry and Duff, 2002; Duff and Cherry, 2000; Flanders, 1998; Noguchi, 2001). Although they provided valuable pointers, the objectives of these studies did not allow deeper investigation into users' interactions with e-texts. Interviews conducted by Ruhleder (1995) with users, tool developers, and editors of *Thesaurus Linguae Graecae* elicited interesting results about various aspects of the use of sources, but this study, which was focused on one of the first large electronic projects, is now dated.

III. Methodology

This study of scholars' engagement with e-texts aimed at a broad investigation of participants' interactions with e-texts and their experiences of working with these sources. It focused on scholars in literary and historical studies because they are known for their intense and sophisticated work with textual materials. Projects aiming to develop computer applications in the humanities were excluded from the scope of this study. Primary materials are the main source of information for many scholars in literary and historical studies and for that reason this investigation focused on interactions with primary sources.

The term "electronic text" in this chapter means any textual material in electronic form, used as a primary source such as literary works and historical documents. Digitized archival copies of magazines and newspapers or web sites could be electronic texts when they are used as primary sources.

Electronic texts could be written or spoken (e.g., oral histories), digitized or created electronically, stand-alone documents, or part of electronic databases and editions.

The roles of electronic text in research enquiry in literary and historical studies were explored to deepen understanding of the nature of scholars' engagement with e-texts. Qualitative methodology was used to answer the following research questions:

- How do academic researchers interact with e-texts?
- What do e-texts contribute to their research projects?
- What are some of the challenges and aids influencing the interactions with e-texts?

A. Study Participants

Sixteen historians and literary scholars from two major Australian cities and one participant from the United States, all active academic researchers, took part in the study. The group was not representative in any way but was composed of people with different characteristics. Historians and literary scholars were approximately equally represented as were people of both genders (Table 1).

Participants provided data about 30 projects covering a wide range of time periods, approaches, and disciplinary orientations. Projects in literary studies ranged from Old Icelandic to contemporary Australian literature and from creative writing to theoretical considerations of literature in English. Historians discussed projects in Australian, English, American, and Asian history and included studies of religion, political, and cultural history.

Details about participants and their projects were carefully disguised to protect participants' privacy and ownership of their ideas. Numerical codes were used to label data from the participants. The role of study participants is a topic of numerous discussions in the literature about qualitative methodology, including those specific to the field of library and information studies such as [McKechnie *et al.* \(2006\)](#). Numerical labeling was chosen as an

Table 1
Study Participants

Total number	Gender	Field	Career stage
16	9 female 7 male	9 historical studies 7 literary studies	2 early career 5 mid-career 9 senior

effective and neutral way of labeling data. The numerical labels used are in the form 1/1, 2/1 or 1/2, 2/2, and so forth, meaning “Participant’s number/Data gathering stage.” For example, 1/2 means participant 1 in stage 2.

B. Data Gathering

The study had two stages. The first stage included in-depth semi-structured interviews and other forms of data gathering, such as examination of participants published works and e-texts discussed in interviews. Participants were asked to discuss two projects: a finished and a current project in which they had used e-texts at least once. Focus on a particular project enabled better understanding of e-text in the research process and provided a distinct framework for discussions. Protocol for semi-structured interviews in this stage was tested in a pilot study, which consisted of three interviews. Data from the pilot interviews were not used for analysis.

The second stage involved a smaller group drawn from participants in the first stage. They recorded detailed information about one of their current projects by using data-gathering forms and audiotapes on which to record comments. Finally, they discussed details of the research project and their view of electronic texts in the research process in the second interview. A two-stage research design enabled prolonged engagement with the field providing opportunities for insights into the development of research projects.

Table 2
Data-Gathering Summary

Stage of the study	Method	Number of participants
Pilot study	Interview	3
First stage	Interview	16
	Examination of participants’ works	15
Second stage	Examination of e-texts	If possible
	Interview	4
	Audio tape with comments	2
	Form	2
	Examination of participants’ works	3
	Examination of e-texts	If possible

Overall, the main form of data gathering was 20 interviews with 16 participants who discussed 30 research projects. Table 2 summarizes the data-gathering methods, which were used in the study. Additional details about data-gathering methods can be found in Sukovic (2008).

C. Data Analysis

Data were analyzed throughout the process of data gathering. Audio tapes were fully transcribed, and all data were analyzed by using grounded theory techniques described by Strauss (1987), Strauss and Corbin (1998a, b), and Glaser (1998). The software *Nvivo* was used after an initial coding scheme was developed.

IV. Interactions with E-Texts

Engagement with electronic texts includes a wide range of interactions, from working with written and oral texts, reading, and developing electronic collections to a variety of searching practices and uses during the research enquiry. Understanding the complex nature of electronic text underpins discussion about interactions; therefore, it is necessary to start by defining what is meant by e-text.

A. What is E-text?

Modern meanings of “text” include traditional understanding of text as a linguistic phenomenon as well as a very broad postmodern understanding, which encompasses linguistic and nonlinguistic forms of expression. An understanding of text in this work starts from traditional definitions of text as an essentially linguistic phenomenon. Text is defined as an autonomous linguistic chain, oral or written, that constitutes an empirical unit, fixed by writing or recording (Rastier, 1997; Ricoeur, 1991). Textuality is the “totality of the properties giving cohesion and coherence and that render a text irreducible to just a succession of utterances” (Rastier, 1997, p. 265). This definition, grounded in the experience of working with previous textual technologies is useful, not only because it says what text is but also because it provides a reference point with which to contemplate new meanings associated with electronic texts.

Although e-text can be a plain string of text in a digital form, it is usually presented as hypertext linking different textual objects, media, and formats. Multimedia is an essential part of electronic textuality. Connections

between diverse types of information enable combinations of the linguistic, visual, or musical expressions of an idea. Smith (2004) wrote that a “more radical approach to the co-presence of words, sounds and image is . . . that of ‘semiotic exchange’: the negotiation of different media so that each takes on the others characteristics and cultural connotations” (“From analogue to digital: The technowriter”). According to Smith, semiotic exchange is not about just bringing different formats together, but also about the way they are shaped by each other so that text, image, and sound adopt each other’s properties. The presence of other media with and around text changes its meaning. Multiplicity becomes part of its semiotic field.

Multimedia and associated transformations of textual meanings provide the basis for changes in values. Kress and Van Leeuwen (2001) noted a distinct preference for mono-modality in Western culture in the past, so that dense text, for example, was used for the most highly valued genres such as literary novels, academic works, and official publications. The prominence of visual qualities of electronic text and new possibilities for the inclusion of other media have shaken the singular authority of text and promoted multimodality.

1. E-Texts as Fluid Objects

Discussions with researchers who participated in the study revealed that multiplicity and semiotic exchange were very much part of their perceptions of e-texts. Blurry boundaries between media and formats are not the reflection of any temporary lack of clarity, but rather of the consistent and prominent characteristic of e-texts.

Images, bibliographic records, and full text are very difficult to distinguish in the fast move from one object to another, “all of which is somehow electronic text” for a researcher (participant 6/2). Different types of materials are meshed in results “thrown up” by search engines. A possible reason for this perception was described by participant 6/2: “I treat the Google search engine as . . . perhaps not a database but an entry point into many, many possible databases or many, many configurations of text.” Some participants referred to both visual and textual sources when they talked about e-texts used in a project.

Fluidity is an essential characteristic of electronic texts (described in some detail in Sukovic, 2008). When trying to distinguish electronic text from other media and formats, participant 10/1 said that “it becomes like the air you breathe. It’s very difficult to talk about because it’s everywhere.” Ocean metaphors were a prominent part of discussions about e-texts referring to their fluidity and unpredictability of online searches. It is a “vast ocean of

information out there and I can draw on that when I feel like it” (participant 9/1), or exploration of a textual database is like “going in fishing, pot luck to see what turns up” (participant 6/1). A researcher would go to the Internet “just to see what it threw out” (participant 1/1).

B. Interactions with Selected E-Texts

Interactions with e-texts are often integrated in the research process in a way that makes it difficult to distinguish clearly between activities such as using and reading e-text. Using e-text involves active searching, interaction, watching, different ways of reading textual and visual signs, downloading and manipulating text, and only occasionally sequential reading as one would read a book.

Scholars are less likely to read books online for a long period of time but use them for browsing and searching (Hillesund, 2010; Liu, 2005; Summerfield *et al.*, 2000). Brown (2001) found that sequential reading, cover to cover, had been used less often than segmental reading: “Readers of digital text search, scan, select, cut, paste and create a ‘personal library’ of related files that hold their citations and texts” (p. 395).

Researchers in this study reported that they usually bookmarked selected sources and would then read them on screen or print or work with the text in audio form. Interactions with selected e-texts included downloading and organizing copies on researchers’ own computers.

1. Reading and Printing

Different types of reading are an essential interaction with e-texts that enables either assessment of the retrieved text for further use or intellectual engagement. Most researchers who read e-texts on a screen did so to “scan read.” They mentioned speed-reading a whole book from less than an hour to maximum two hours (e.g., participant 4/1 read a novel in this way). A few participants practiced reading from the screen even when they read in a more focused way and for extended periods of time. Participant 6/1, for example, usually read from the screen while taking notes. He found reading from computer screens quite comfortable compared to reading from microforms.

The majority of participants tended to make printouts for in-depth reading or for speed-reading of longer texts, because they found it tiring to read on the screen. This finding is consistent with the dominant view in the literature. Some researchers preferred to take printouts to read in an armchair instead of at their desks and talked about a different physical settings required for focused reading.

Another reason for printing was that participants found it difficult to assimilate intellectually material in electronic form. This finding supports results of Hillesund's (2010) study. Participant 2/1, for example, felt that she had not read the text properly if she read it on screen. Participant 13/1 needed to make printouts at some point for synthesis because it was easy to keep adding files without any intellectual grasp of the material. It was easy to be "lost in that tunnel that the computer is," scrolling up and down, this researcher said. The printed text was usually marked and annotated.

It was useful to print e-texts while working in physical collections. Participant 7/1 described how she worked in overseas archives. She would conduct a catalog search and save it and then start ordering materials in hard copy. While waiting for hard copies to arrive, she explored their electronic representations or used e-texts to make printouts. Participant 6/1 said that he would save time in archives by finding an electronic copy of a page to print rather than making a trip to another archive or waiting for a librarian to give permission to copy it.

2. Working with Oral E-Texts

Interaction with e-texts in oral form depended on what was permitted by the electronic system. If texts were presented as simple audio files for listening, the researcher would transcribe whole documents or summarize and transcribe sections of it. Participant 10/1 tended to read documents into a tape recorder when he could not make photocopies. He would transcribe the tapes and use electronic copies of the transcriptions as e-texts.

Participant 2/2 used audio files in archives. One particular archive had a database, which provided text transcriptions as well as sound waves for some recordings. There were also keywords marking sections of the audio file, which aided retrieval. Access to sound waves was useful because it enabled more options in interaction with texts and provided for more efficient marking of relevant sections. The interaction was compared with editing of audio recordings.

3. Making and Organizing Electronic Copies

The majority of participants (13 participants) reported downloading or copying the whole or part of e-texts to their personal computers. When they discovered materials in archives, they sent electronic copies to their e-mail address, or archivists made electronic copies for them. These files were stored and named in a way that made sense to the researcher, often in predetermined

ways that organized the whole lot of data for a project. The downloaded e-texts were used in conjunction with all other materials in the personal library. Some participants mentioned using written notes or cards to organize access to these files. For participant 13/1, cards were the first step in synthesizing downloaded texts.

The extent and frequency of adding e-texts to a personal digital library varied. Participant 2/1 maintained a very large and elaborate digital library, accessed through the bibliographic software *EndNote*. This researcher downloaded e-texts and other files in various formats. She would normally copy and paste all details into *EndNote*, index the file by keywords devised for personal use, and then type either her own notes or copy excerpts from the text into the record. *EndNote* records had links to file locations on the computer. This participant usually had her laptop computer when working in physical collections, and therefore, she added records and annotations as she worked with materials. The researcher developed a very extensive library that required a great deal of effort to back it up—culling the hard drive and maintaining links from *EndNote* records to file locations. She found that the benefits of easily accessible and well-organized materials were worth the effort.

4. Developing Collections of Own E-Texts

E-texts written or prepared by the researcher provided important materials in some projects. Participants mentioned producing and using e-texts in two ways, which were relevant for this study:

- they produced textual databases or collections for their own use for purposes of a particular project, or
- they published e-texts in one project and then used them as primary materials in another project, which aimed to produce traditional output.

Four participants (6/1, 8/1, 10/1, and 12/1) prepared their own databases to be used as tools in a project. In another four instances (participants 12/1, 13/1, 15/1, and 16/1), they used their own e-texts produced in previous projects. The interactions with e-texts produced by the participants in a previous project did not differ from working with any other e-text.

More interesting from the perspective of interactions with e-text was the first group of projects, in which textual databases or collections were prepared to provide a tool for information retrieval and analysis in the particular projects. These databases and collections were not publicly available. The content and the use of the database varied, depending on a particular topic and the researcher's sense of how she/he wanted to conduct

the research. The following two examples outline different projects in which participants developed textual databases for their own use. Unlike e-texts retrieved online, these collections were not normally used for reading and printing but for searching.

EXAMPLE 1: WORKING WITH A COLLECTION OF DIGITIZED DOCUMENTS

Participant 10/1 wrote a biography of a contemporary writer and developed an extensive collection of documents and interviews. The researcher found that the only way to work with the collection was to enter it into the electronic form. The production of a searchable collection was a major digitization project in which the researcher transcribed all interviews and numerous other documents. None of the library holdings that the researcher used were digitized.

The researcher handled all of the primary materials in electronic form by using a word-processing program. He had electronic folders according to the material type (e.g., interviews and letters), and inside each folder, there were files alphabetically arranged under various names. These e-texts were used in conjunction with photocopies of documents arranged by date and then by name.

EXAMPLE 2: WORKING WITH A DATABASE OF LITERARY MOTIFS

A relational database of literary motifs was developed to support research into a national folk literature. Participant 12/1 explained that the purpose was to compile a database of motifs and to compare them with existing analyses or other relevant compilations of folk motifs.

This participant did not normally use keyword searches in electronic editions of works she regularly consulted or in the database of motifs, because she thought that keyword searching of primary materials was "a rather low grade." The researcher felt that she needed to know texts very well and to understand how motifs fit in the whole narrative, so that there was no substitute for reading. The relational database allowed the researcher to explore connections between texts and motifs.

Researchers who developed their own digital collections and databases of primary materials invested significant time and effort in tasks such as digitization, indexing, and database development, with or without assistance. Approaches to these processes depended on requirements of a given project and personal work habits. In most cases, scholars produced highly valuable resources, which remained unknown outside a researcher's circle of colleagues.

C. Information Seeking in Electronic Environments

Information seeking and gathering have always been key parts of the research process. [Unsworth \(2000\)](#) used the term "scholarly primitives" to "refer to some basic functions common to scholarly activity across disciplines, over time, and independent of theoretical orientation" (para 1). Discovering was identified as one of the primitives. With online sources available where scholars work, information seeking becomes an integral part of the investigation and thinking about the research topic.

Users in general, and humanists and social scientists in particular, conduct evolving searches. They start with a query and then move to a variety of sources, constantly adjusting the query by selecting bits of information. [Bates \(1989\)](#) discussed this way of working and called it a berry-picking model, which described online and other information retrieval. The question is which strategies scholars use to pick their "berries" in constantly evolving electronic environments.

Humanists traditionally use a wide variety of materials, and this is unlikely to change. Preference for traditional library catalogs and finding aids also remains, as reported by the [Digital Library Federation \(2002\)](#). At the same time, keyword searching has become a notable online practice ([Duff and Cherry, 2000](#); [Wisneski, 2005](#)). A recent study showed that a network was increasingly a research starting point rather than library-specific tools ([Schonfeld and Housewright, 2010](#)).

Use of citations in information seeking is a well-documented practice. [Ellis](#) called it chaining and defined it as "following chains of citations or other forms of referential connection between material" (1993, p. 483). [Palmer and Cragin \(2008\)](#) identified chaining as one of the best examples of an information work primitive. [Tibbo \(2003\)](#) found that 98 per cent of primary materials were found by following leads in printed sources. [Brockman et al. \(2001\)](#) wrote that chaining helped scholars "maintain a conceptual network of the field into which they envision their own work being placed" (p. 9). [Buchanan et al. \(2005\)](#) thought that the provision for

browsing in digital libraries was inadequate, but that chaining was used often and replaced browsing.

Researchers consult colleagues and prefer informal and semiformal channels to finding information (de Tiratel, 2000). Recent studies have indicated that ICT has influenced the strengthening of informal networks and even collaboration. The number of British humanists who rated colleagues, conferences, and research networks as essential information providers was very close to that of scholars in social sciences and sciences (Education for Change, 2002). Scholars in Israel have significantly increased their cooperation with colleagues in other countries because of the Internet (Baruchson-Arbib and Bronstein, 2007).

Study into the roles of e-texts confirmed the importance of established research methods and sources but also uncovered some behaviors emerging from traditional practices. The multiplicity of sources, formats, and textual information that could be quickly brought together form a basis of exploration that allows scholars to see different meanings and aspects of the topic.

1. E-Texts and Searching

Participants described searching for primary sources of information as a constant movement between online and hard-copy sources, indexes, and full-text documents. Searching for information sources included electronic searching, examination of editions that gather materials in different ways, consultations with archivists, searching through card catalogs, and sending advertisements to particular groups to find people who might have relevant information. Reading and travelling to collections and sites of interest was also part of information gathering. An important part in some projects was access to memories or experiences of particular groups of people through interviews, informal conversations, blogs, discussion lists, and bulletin boards.

Searching the Internet was widely used for discovering bodies of material and for finding particular information. Searching by keywords or personal names, a standard practice in historical research, was often used in online searches. Google was often mentioned as a starting point for an Internet search. When the researcher wanted to discover what was available, she/he would type a name or a keyword, aiming for a rather broad but manageable search. Skim reading a large number of recalled items was often the only way to distinguish relevant items from frustratingly long lists of irrelevant ones.

Web surfing starts from a subject gateway or a well-known site on the topic and develops by following links. Researchers in literary studies described a process where they started from a journal of electronic poetry or a

writer's web site, then went to other sites where works of interest were published. From there, they followed links to discover new literary works. This includes browsing and searching at different sites.

Database searching is a regular starting point for interactions with e-texts for some researchers. Many researchers had one or two favorite databases, which they used often (e.g., JSTOR, EEBO: English Books Online). Researchers interrogated these databases to discover any relevant e-text, but some researchers usually consulted known works or searched for specific authors and works.

Monitoring can be a part of interactions with a database when it provides information and digitization is in progress (e.g., EEBO). Some researchers found this information useful because they would check periodically to see whether the text had become available. Scholars who studied contemporary literature monitored web sites to find out when new works became available online.

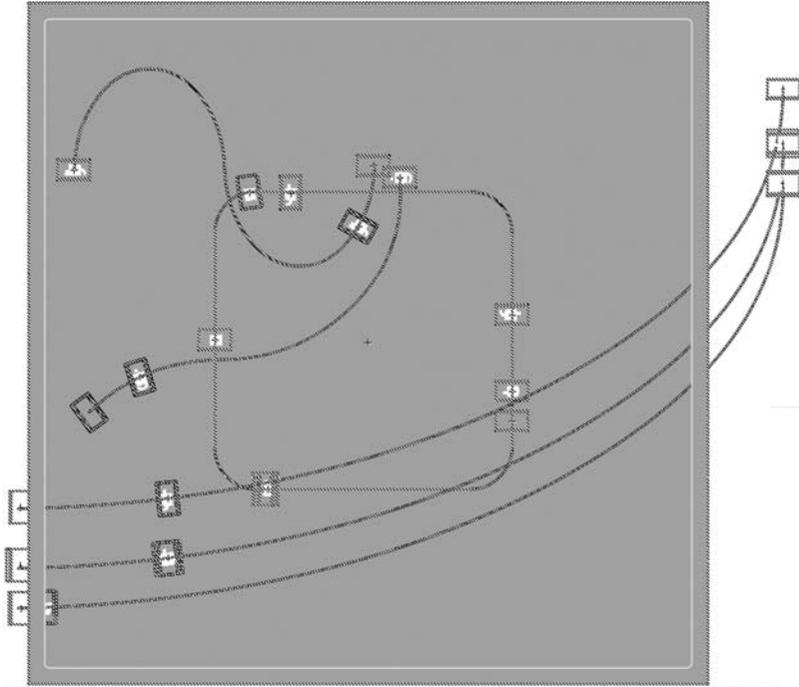
Information embedded in other sources was used to retrieve relevant primary materials. Sometimes researchers discovered primary text in secondary sources either as references or as content embedded in secondary sources such as books or journal articles. Researchers found it most useful when databases provided access to both secondary and primary sources.

A combination of searching electronic and analog sources sometimes led to e-texts. Participant 14/1 used e-texts to find leads to analog materials, and therefore, he examined summaries of particular historical documents available from a database as an indication of where he could find required information. Participant 2/2 described the way she worked in an archive of audio recordings kept in analog and digital formats and retrieved them through different systems available in the archive. The researcher would try to think laterally and to understand the reasoning behind the retrieval system, but found it was easier when a professional acted as an intermediary. Some researchers also needed professional help when working on topics with very high recall.

Any system of retrieval and organization adds an intervening layer to the material, and therefore, participants stressed that they needed to know systems of representation, and some participants needed to have direct contact with material as much as possible.

2. Netchaining

The possibility of fast searching across dispersed and diverse sources, the lack of physical boundaries, and technologies for social interactions provide conditions for new information practices. Explorations in this study indicate that some online behaviors and adaptation of old practices for the new



Stefans (2010), http://collection.eliterature.org/1/works/stefans_the_dreamlife_of_letters/image_19.htm. Source: Reproduced with permission, © 2000 by Brian Stefans.

environment are becoming integrated in qualitatively new information-seeking patterns.

Study participants discussed information-seeking practices, which combined aspects of networking, searching, chaining, browsing, and web surfing in a distinct pattern of online information-seeking behavior called *netchaining* (Sukovic, 2008). Netchaining is an emerging pattern of establishing and following information chains, which connect people and a variety of online sources. For example, the practice of browsing in the electronic environment may include browsing of distinct digital collections, as well as web surfing, as a way of looking for relevant information by searching and following hyperlinks in a range of sources. Chaining is often combined with searching, browsing, and web surfing. Study participants described various instances of going to an academic e-text or a site, which they visited regularly for current awareness. When they found a relevant source, they would follow the lead to an author's web site of the author or

archive, retrieve another source, and seek further information from an archivist, the author of the work or colleagues on online forums.

Participants explained how an initial search may open paths in different directions in which information seeking, retrieval, and communication play part in the exploration of the topic and, possibly, become part of long-term networking:

Sometimes ... if an article is really fascinating, and there are some writers on [country] who write so well and so interestingly, I would look up their web site, find them, email them, you know, make a note of them for future potential research stream. (participant 1/1)

Participant 16/1 talked about web surfing, searching or browsing journals, and visiting authors' web sites. This researcher would contact authors to make enquiries about technologies, which have been used in the production of a work. When asked whether authors were willing to respond, participant 16/1 answered,

Yeah, yeah, I think people who make electronic texts are probably more forthcoming about that than, say poets writing on a page.

Why?

Well, I suppose just because they are, there is the more kind of obvious technology. They know that in the end that you could probably really trace that thing yourself and because I think they're probably more medium interested, they're perhaps more interested in the process, they're interested in the technology and how you do things so that they're perhaps quite interested in passing that on to somebody. (participant 16/1)

Although netchaining does not have to include communication with other people, it is a distinctive characteristic of online interactions. Researchers contacted other people because of one of four main reasons: to find information, to aid with access to a physical collection, to confirm information and for current awareness. These reasons are explained in Sukovic (2008). Table 3 summarizes why participants initiated netchaining activities that involved communication with other people. Reasons and netchaining activities can be combined and so one reason can include several netchaining activities from the same category. In the first category, *To find information*, contacting another person is the first step.

Through netchaining, a researcher identifies immediately relevant information, but also establishes information chains for future use and broadens networks of people. Traditional research environments also enabled the establishment of information chains, but the difference in what was immediately available, as well as communication norms, promoted a different range and type of connection. In online environments, speed, immediacy, coexistence of a wide range of sources, and ease of

Table 3
Reasons for Initiating Netchaining Activities Involving Other People (Sukovic, 2008, p. 277)

Reasons for netchaining	Netchaining activities
<i>To find information</i>	
<ul style="list-style-type: none"> • If interested in further information about a document • To confirm detail(s) from e-text • If information is crucial • If author's authority could not be discounted • Interested in technical details of electronic literature • If curious 	<ul style="list-style-type: none"> • Contacted a person who may know • Looked up author's web site • Made a note for future use • Contacted the responsible person and asked question(s) • Connected that person into own network, invited to a conference
<i>To aid access to a physical collection</i>	
<ul style="list-style-type: none"> • To confirm details about a collection • To arrange a visit to an archive 	<ul style="list-style-type: none"> • Contacted archivist listed on the web site
<i>To confirm information</i>	
<ul style="list-style-type: none"> • When worried about trustworthiness of a document 	<ul style="list-style-type: none"> • Posted a question to a discussion list • Contacted the responsible person
<i>For current awareness</i>	
<ul style="list-style-type: none"> • When coming across new work, wondering what other people do 	<ul style="list-style-type: none"> • Contacted the author • Initiated online discussion about the type of work people are doing • Contacted people outside the discussion list

Source: Reproduced with permission, © 2008 by The University of Chicago.

communicating with people who share the same interests all contribute to the establishment of connections, which may go in many different directions.

The concept of intertextuality is particularly relevant for considerations of e-texts in general and netchaining in particular. Hypertext, multimedia, and social technologies promote textual connections and polysemy, which are the central ideas of intertextuality. Textual connections appear in what Kristeva (1980) described as three dimensions or coordinates of dialog:

writing subject, addressee, and exterior texts. The word's status is thus defined *horizontally* (the word in the text belongs to both writing subject and addressee) as well

as *vertically* (the word in the text is oriented toward an anterior or synchronic literary corpus). (p. 66)

In online environments, horizontal connections are promoted by social technologies, which make connections between author and reader explicit and evident in many everyday communication exchanges and acts of collaboration. Vertical connections are emphasized not only by hypertext but also by netchaining practices that promote links formed around a particular information need and task. The range of exterior texts has widened significantly in the process. Easy access to sources is changing the sense of center and periphery and blurring boundaries between authoritative and nonauthoritative knowledge.

As Bolter (2001) pointed out,

this passing on of the text from writer to reader, who then becomes a writer for other readers, is nothing new; it is the literal meaning of the word 'tradition'. The previous texts were also part of textual connections, but [w]e are now using the computer to simplify the technology of intertextuality so much that we seem to be refashioning the idea of tradition itself. (p. 179)

D. Investigation of the Research Topic

This study found that participants' investigation of their research questions with the aid of e-texts took the following four main forms:

- exploration of patterns and connections by searching and comparing diverse bodies of electronic texts;
- production and interrogation of textual databases to explore research questions;
- exploration as part of academic research to be used in creative writing; and
- investigation of digital literature.

1. Exploration of Patterns and Connections

This is a prominent online practice described by researchers in historical studies. The researchers searched for a variety of materials from different sources to build a profile of the topic. Critically important aspects of the search are search engines, which retrieve information in a systematic way and provide access to a wide variety of genres. Participant 13/1, for example, searched for information about a historical personality known in aboriginal oral history and found that "oral history often gets captured in the blogging culture." He looked at a variety of online sources and found "a whole range of different registers of different genres of text all turning up in the electronic

version.” I asked the researcher about the place of e-texts among other resources used in the project, and he responded,

through the project, I became more and more reliant, really, on search engines. Not for the final conclusive material necessarily but to help me see patterns, to search on a particular set of search words or look for a particular piece of evidence or try to trace a character. (participant 13/1)

Simultaneous access to online and personal sources along with interactions with computers promote serendipitous discoveries. One of the participants explained how this process works:

when you've got your computer going and you've got a couple of different documents open and you're cutting and pasting or you're toggling between two or three documents, . . . you're just feeling ideas come out of this idea, idea no. 1 and idea no. 2, when they pop up against each other often completely other idea, idea no. 25 will, sort of, turn up out of that. (participant 6/2)

Some serendipitous discoveries emerge in moving relatively quickly through large amounts of diverse materials when juxtaposition of ideas and information trigger novel combinations.

2. Production and Exploration of Textual Databases

Production and interrogation of textual databases to explore research questions are described by scholars in both literary and historical studies. The aim is a focused in-depth exploration of a limited range of texts. Although it is possible to work in this manner online, all participants who referred to interrogation of textual databases worked offline, either because they worked with a stand-alone database or because it was easier to examine downloaded texts.

The simplest use of textual databases or editions is to check a detail and compare different versions of a text, which was reported by some participants, but this is not seen as a practice that contributes directly to the exploration of research questions. Interaction with a full-text database, however, can change the way exploration unfolds. The previously mentioned database of literary motifs was not used for full-text keyword searching, but the added intellectual value was useful to the researcher because it supported searching, clarifying ideas, and exploration of connections.

In other projects, keyword searching was an essential part of exploring hunches and providing a basis for further analysis. Participant 8/1 developed his own database and found the process of constructing the database an important part of developing research questions. The researcher used this database to explore links between concepts and to prove his hypothesis that a

widely held view in his field was not quite correct. It was hardly possible to prove his understanding by using more traditional research methods. The required texts existed only in translation in a print version at the time of his study and word counts would take a long time. The slowness of the process would not allow the exploration of all possibilities; therefore, the researcher decided to develop his own database. When a more extensive readily available database of relevant primary materials appeared later, the scholar started using it to explore initial thoughts about his topics.

Similar to explorations of large amounts of diverse materials, in-depth exploration of a small number of texts allows researchers to investigate connections. Participant 6/2 talked about his interrogation of a particular version of the Bible. He would search for certain phrases, make concordances, and then make comparisons by examining the electronic version of the Book of Common Prayer. Although these texts are available in the library, there is an advantage in exploring electronic versions because they promote understanding of “relationships amongst bodies of knowledge” (participant 6/2).

Use of textual databases depends on their availability and a match between the scholar’s needs and what the particular database can provide. Participant 6/1 noted, “It’s not straightforward because certain things will not become apparent unless you’re asking the right sorts of questions. The program really isn’t written with my questions in mind so it will have its limitations” (participant 6/1).

Exploration of research questions aided by interactions with e-texts, whether focused or broad, was valuable because it enabled academics to see connections, deepen their analysis, and test hypotheses. Another significant but less tangible benefit was that e-texts allowed scholars to follow half-formed ideas, to explore them in a fluid movement among search queries, sources, and links. The speed of retrieval enables investigation of hunches: “And you can do that, you can chase that quite quickly whereas I can remember having those kind of hunches 25 years ago . . . but to chase those would take literally 36 hours and by that time that hunch is gone, you know, that tip-of-the-tongue feeling is gone” (participant 6/2).

3. Exploration of E-Texts for Creative Writing

Literary scholars talked about two other forms of online exploration: exploration of e-texts to support traditional creative writing and analysis of digital literary works. Exploration of e-texts as support for creative writing for print is led by the scholar’s own sense of what can be used creatively. Participant 1/2 talked about her research project at the point when she finished all research in archives and libraries and then searched the Internet to

go beyond print and find details that were not available in hard copy. She looked for any source that could shed some light on the experiences of people who lived in the time and space of her writing. The search was broad and open-ended because various pieces of information could be used in novel ways.

Interactions with e-texts contribute to building a background on the topic. In some instances, it may be just to give character a thought rather than to develop a full argument that would be required in academic genres. A variety of historical and personal information on the Internet allows the researcher to develop a sense of what is possible.

4. Investigation of Digital Literature

Investigation of digital literature involves on-going searching to discover new literary works on the Internet. In most instances, works such as electronic poetry cannot be explored offline, especially not outside the electronic environment, and therefore, investigation of digital literary works necessarily happens online. Researchers who studied electronic literature watch the work, inspect the code, and then repeatedly watch the same short section to aid analysis. The main interest in this investigation is in revealing different meanings enabled by the multisensory experience of interaction with electronic literature and understanding the experimental nature of the work.

5. Core Aspects

A number of the described practices can be observed in traditional research environments, but the core aspects that provide the unique functionality of e-texts distinguish interactions with e-texts from working with analog materials. Participants' discussions about the way they had interacted with e-texts uncovered the following three core aspects of e-text functionality:

- electronic searching
- availability of e-texts
- speed

The importance of availability and speed confirms indications from the literature that the content and scope of online materials, convenience, the speed, and savings in scholars' time are critically important for the adoption of ICT.

Electronic Searching. Study participants searched metadata and full-text documents to retrieve specific information or explore a topic. In most cases, they perceived searching by a search engine as more reliable than the same function done by people, because it was more thorough and accurate,

although there were situations in which the assistance of a human intermediary such as archivist was desirable or even necessary. Electronic engines provide a unique facility for retrieval of dispersed information. Participants 10/1 and 12/1, for example, emphasized the importance of searching across different types of dictionaries that covered historical language uses, which could not be adequately reproduced in other ways.

The reliability of electronic searching was so important to participant 14/1 that he repeated searching, completed in traditional ways to make sure that he did not miss anything. Although he had big files with photocopied materials that he had explored over the years, he repeated searching when these sources became available in databases of primary materials. Electronic retrieval across bibliographic records and other forms of metadata as well as full-text documents provide results that could be hardly achieved by searching in traditional ways.

Availability. Functionality of electronic searching is based on the availability of e-texts. A wide range of e-texts provides,

- basis for searching, text analysis and manipulation,
- a substitute for materials that are not readily available in hard copy, and
- obscure and unique materials.

Access to electronic copies of materials that are available to a researcher in hard copy is valuable because of electronic searching and the convenience of not being place-bound. Researchers often worked with hard and electronic copies for their unique advantages. In many cases, hard copies were not readily available, and therefore, electronic copies were substituted, which enabled work with the text until a hard copy could be inspected if needed. Researchers were able to identify these materials through bibliographic aids or already knew about their existence.

Obscure and unique sources such as original documents and materials that are not available in print are either difficult to identify or the researcher would not attempt to find them if they were not available online because of difficulties involved in finding and accessing rare materials. E-texts allow the researcher to go “beyond books” (participant 1/1) by providing interaction with obscure digitized documents and materials that have never existed in hard copy. The value of obscure sources was illustrated by participant 11/1, who found an electronic copy of a work that contained more extreme statements than other works by the author under investigation. This title was not included in printed selections of the author’s work, but it provided

important insights for the participant's study. Study participants also used e-texts to find personal information about people from the past through oral stories contained in blogs and online postings as well as information that could be obtained only in direct communication or online. Unpublished literary works that exist only in electronic form and digital literature are unique sources of information for a literary scholar.

Availability of e-texts influenced the formulation of a research focus and exploration of a topic. The provision of e-texts and gaps in provision form a pattern that can inform exploration. Participant 14/1 found that electronic searching across available materials is valuable because "you can get a few things, and you can trace absences as well as presence, if you like, the presence of a particular research topic."

Access to sources of information is a key aspect in any research enquiry, but the study participants who explored their topics online suggested that availability of e-texts and the way search engines retrieved information might have particular significance in affecting development of the enquiry. Participant 1/2 expressed concerns that Google and the way it retrieved available sources may take the researcher in a certain direction. The same is the case with analog sources, but the impact of the availability of e-texts can be attributed to different ways of interacting with print and electronic texts. Participant 13/1 found that interactions with electronic sources required the researcher to assume a more active role. Rather than relying on the author of the book for guidance, the researcher formed his view through the interaction with available materials:

The electronic or digital presumes or requires a subjectivity which is more investigative than receptive, if that makes sense, that you're more delving into the thing, *putting together your own thesis in relation to the patterned information that's available*, whereas if you're in the presence of a really great book, you tend to allow the author to carry you along. Every now and then you'll pause and try to know your own mind in relation to the way the author is carrying you along. [emphasis added; participant 13/1].

This participant also discussed the usefulness of search engines that retrieve information in a patterned way. The researcher formed a view through a dynamic relation to patterns emerging from electronic searches and in relation to available information, rather than in relation to a path set by the author of a book, who may take the reader in a certain direction. In the electronic environment, the pattern emerging from searches is likely to have a stronger impact.

A variety of materials and representations as well as the breadth of contextual information were aspects that made available e-texts more or less

useful. Participant 3/1 thought that the availability of a wide range of e-texts and other materials allowed her to compare different representations and make connections better than ever before, whereas participant 6/1 commented that digitized materials did not provide sufficient contextual information. Participant 14/1 stressed that different interest groups presented e-texts for their own reasons, and therefore, special caution was required in evaluating from which perspective the e-texts were presented. The electronic presentation of materials with contextual details and transparent selection processes makes available materials more acceptable for research purposes.

Speed. Speed of access and retrieval aid quick searching for specific information and the assessment and selection of sources. Fast retrieval of large amounts of information aids pattern recognition. It also aids tasks that would take a long time, such as the production of concordances or comparisons of passages in different translations.

Researchers used e-texts to explore questions that could not be investigated practically in any other way. A quick electronic search across a large amount of materials is enabling new research possibilities: “to be able to search everything that relates to a particular topic over some decades and across a number of newspapers is just fantastic. And it gives a whole added ability to make comparisons and to do better research” (participant 3/1). Exploratory interactions with e-texts—compared with playing jazz, partially because of quick, sudden moves, sometimes in a seemingly random fashion—were dictated by the unfolding of investigation and the researcher’s interest. Speed enables following hunches and tip-of-the-tongue feelings that would change or disappear in a longer process.

Hayles (2003, p. 215) wrote about the critical importance of speed for the development of understanding: “When information enters in a short time-frame — a few seconds — it can be stored as a block. When it enters more slowly, much more effort is required to integrate it with existing information.” On the other hand, e-text can make intellectual processing more difficult. Study participants printed e-texts when they wanted to gain an intellectual grasp of content. Hard copies are easier to use for careful reading and reflection, which may be partially related to the fast interactive nature of working with e-texts.

E-texts also influence the use of time in other aspects of the research process. More effective organization of the research process, quick retrieval of factual information, and faster construction of a paper were possible because of the possibility of retrieving information, contacting people, and manipulating text quickly and easily. Participants also pointed out that some intellectual aspects of the research process cannot or should not be fast.

E. E-Texts and Writing

Working with digital media and hypertext and writing for academic purposes are two aspects of the research process, which often do not coexist easily. Diverse information paths and multifarious online voices, which are taken into account during the research process, are usually filtered to outline a linear argument with a strong authorial voice. Although digital media provides opportunities for different presentation of research results, it has been rarely used. According to Bolter (2001) writing is a culmination of scholarly research, and the way it is presented is more than a matter of style. "In order to be taken seriously, both scholarly and scientific writing must be nonfiction in a hierarchical-linear form" (p. 105). A promotion of visual elements in e-texts has not been perceived as advantageous in a culture where a serious argument has to be developed in verbal form. Bolter noted that the success of the World Wide Web, based on borrowing from many media, had promoted its wide use, but that it tended "to devalue the Web for many scholars in the humanities, especially those influenced by French theory with its tendency to distrust visual representation . . ." (p. 113). Despite intense debate about the nature of academic work and value of digital outputs in recent times, academic output has essentially remained unchanged.

Study participants discussed their experiences and thoughts about academic writing in relation to the way they conduct research. Some participants said that interactions with e-texts had an impact on their thinking about, and choices of forms and genres, for the presentation of research results. They discussed their need to develop new electronic genres, which was limited by existing academic standards and traditions.

The fact that references to e-texts were largely absent from participants' published work reflects scholars' perception of acceptable academic practice (Sukovic, 2009). E-texts have some influence on scholarly research and writing, but this is often invisible to the reader.

1. Writing Techniques and Styles

E-texts were used by the majority of participants to copy and paste excerpts into their own writing. Some researchers typed notes and quotations because they felt their computer skills were not good enough to manipulate e-texts. Although there was danger in not inserting quotation marks promptly (participant 2/1), participants who used this method found it quicker, easier, and more accurate than retyping quoted passages.

The ease of manipulating text leads to new ways of using e-texts in writing. "Mix and match," "remix," and "montage" were some of the

expressions used to describe ways of manipulating texts into novel combinations. Considering that the experience of working with e-texts was compared with playing music, it is hardly surprising that participant 15/1 described what he called “remixing methodology” in the following way: “It’s like a DJ who has a stack of records that they mix in a live performance so I do that with my virtual stack of writing.” Another participant talked about digital montage, which becomes part of an exploration of ideas and creation. Participant 6/2 explained the meaning of the practice by comparing it with Jamaican music in the 1960s when people were able to hear music from many countries on the radio and became comfortable with different styles: “Many, many Jamaican musicians talked about how, when they’re just trying to get their ideas formed, they’ll often just move down the dial quickly and get a little grabs of different stuff and in those conjunctions some sort of new set of ideas turns up.”

Traditional genres emphasize the division between creative and academic styles, which have different conventions of what and how should be presented. Participant 1/2 talked about using e-texts differently for different kinds of writing—“emotional resonance” is required for creative writing, whereas rational argument is needed in academic writing:

You’re using it for the kind of emotional resonance of it whereas in academic writing you’re brought up . . . to kind of get rid of all that stuff. I don’t know that’s always right to do it but academic writing has to be coldly, thoughtfully presented in ways that scour off all of the emotional stuff. Whereas in fiction you want it, you deliberately use it to create a reaction for your reader. (participant 1/2)

In some instances, researchers did not want to maintain the division between intellectual and emotional or fictional and theoretical. Participant 6/2, for example, wanted to write an “emotionally and intellectually moving” scholarly book. The division between different genres started to disappear for some people interested in experimenting with new forms of textuality.

I saw myself also writing fiction and the fiction becomes theoretical and I saw myself writing artist theory and the artist theory becomes fictional. So all these different kinds of styles and modes of writing were starting to mix into the merge and I decided that I would explore that. (participant 15/1)

The process of change is not contained in boundary areas. The experience of working with multiplicity and moving between ideas and texts in different directions is brought into traditional forms of academic writing. Participant 6/2 commented on his historical book in which he used literary and academic writing styles. He found that “in an indirect way the existence of electronic texts and certainly the existence of the Internet, and digital forms themselves” encouraged “overlying and mixing and putting into

conjunction with each other, things [that] would have a slightly different tone or a different mood or a different voice or a different set of protocols.” This way of working “if well managed, can be quite stimulating” (participant 6/2). The researcher thought that living and working in the climate of digital montage, mixing and overlaying just set conditions for thinking, “Uh, I could write this book this way I don’t have to write it in one voice necessarily.”

2. Genres and Formats

Bringing qualities of electronic media into writing for print happens on different levels and for different reasons. A number of researchers commented that traditional academic formats did not provide the right fit for the presentation of research based on multimedia sources.

Researchers interested in experimenting with new media and styles stressed that similar experimentation existed before, but computer technology provided new means for exploration. However, academics still need to present research results in standard academic formats. It is similar to writing for print about cinema or music. Participant 2/2 commented that if a researcher was working on television or radio history, it would be appropriate to produce an academic output for the same media rather than write for print. Similarly, participant 16/1 explained limitations of writing about multimedia work for print.

Academic writing for electronic media has not significantly changed, but possibilities and interest exist:

when I’m writing for the Web it has to some degree changed how I do things. It doesn’t necessarily make much difference to my actual argument, my argumentative style but it does mean I link in more to other things on the Web or have visual elements or sound examples. So, yes, it does impact on it quite a bit. It doesn’t necessarily make me put the argument together in a totally different way, but it could do . . . I can see there are a lot of possibilities which I would be interested in exploring. (participant 16/1)

The same participant showed examples of introducing visual nonlinear elements in her academic book by using the page layout to emphasize different aspects of the subject and to bring different examples without following a strictly linear structure. The researcher attributed the decision to present material in this way to the influence of the visual appearance of text on the computer screen.

Print media and online publications mimicking print provide limited options for the development of new academic styles. It is easier to bring sound and visual aspects into conference and live presentations. Participant 2/2,

for example, said that it was easy to include audio files in conference presentations. Manipulation of text from audio files supported her thinking about issues and demonstration of the points for the audience: "I think when I presented papers, people have been really pleased to hear the audio. That just wouldn't be possible without the digital side of things" (participant 2/2).

A number of participants talked about presenting research results in different formats. They started with an aim to write books or journal articles, but realized that they would not be able to present part of their research in that way and thus decided to add a piece in digital format. Participant 7/1 planned to develop a web site to make a series of images and oral texts available. Another reason for thinking of alternatives was to find a better way of analyzing connections and presenting results. Participant 3/1 wanted to link materials in different formats into a multimedia work, which would allow her to explore connections and later present them to the audience. Participant 6/2 talked about the decision to prepare a book and add a multimedia presentation to do justice to different aspects of the research findings. The part of the research that could be presented as a full argument was written as a book because the author was able to acknowledge all different facets and perspectives, but also to develop a conclusive argument. The researcher described the reasons for adding a multimedia work:

So, there, I look at the material and I say, "Well, this is extremely moving and important material, it's extremely narrative but it's inconclusive, you'll never put a kind of an 'Amen' to all of this, it will always be stimulating possible narratives. Therefore, in order to attend to or bear witness to that quality of the material I need to make something which is organized and authored and persuasive but endless and inconclusive." And explicitly inclusive, so that leads me to think, "Oh, that needs to be a computationally driven and delivered thing of some kind." (participant 6/2)

For other researchers, the decision on how to present their work is driven by the reality of job demands to produce books and journal articles:

I have to produce written material ... that's refereed journal articles and book, monograph books, that's what will get another job ... Then if I had extra time or extra funding or something, it would be extra to make an audio thing. (participant 2/2)

Although the research output has been changing, it is still dictated by existing publishing conventions. Participant 16/1 commented that she was rather conservative in the way she wrote journal articles because she often did not know in advance whether it was going to be published in an electronic or print journal.

F. Experience of Working with E-Texts

Study participants talked about the nature of their experiences and thoughts and feelings associated with interactions with e-texts. They compared interactions with e-texts and other media and provided accounts of positive and negative thoughts and feelings, which shed some light on what interactions with e-texts meant to them. They often described their interactions with e-texts in relation to other media and art forms.

1. E-Text and the Print

Study participants, whose education and work experiences developed within the print culture, defined e-texts in relation to print and traditional libraries. The meaning of the “word” and “text” was strongly associated with the print in some statements made by the study participants. The “written word” is associated with the traditional library and the book in the comment that “if you’ve come through that kind of arts, literature study you kind of . . . there is a little tag that still pulls you back to the old library and the book and the written word” (participant 1/1). Participant 4/1 talked about possibilities offered by electronic editions and said that “you can do it in a text as well, to include facsimiles and so on . . .” In this comment “a text” refers to print editions.

The book is used as a reference point that defines e-texts but does not necessarily indicate a preference for one or another. Saying that “my non-electronic books arrived” (1) participant 7/1 turned the common expression “electronic books” around by calling hard copies “nonelectronic books,” and participant 8/1 said that “a database is just essentially a shelf of books on one particular thing” describing e-texts in terms of books.

The nature of working with e-text is explained by comparing interactions with e-texts and books. One of the researchers acknowledged the difference in interactions with the two media without stating a preference: “it’s seamless in as much as I move from one to the other without anxiety but I’m also very aware that the conditions of encounter are quite different” (participant 13/1).

While electronic media provide an increasing number of options to incorporate technology in the research process, physical aspects of the interaction with print are an important part of the experience, so some participants thought that print was likely to be used regardless of the e-text development. Although some participants, like participant 5/1, doubted that electronic scholarship will ever completely replace work in physical collections, others appreciated the physical aspects of the book and would

not like it to disappear, regardless of its practical use in research. Participant 9/1, for example, said, “I never, ever, ever want to see the book go, I love books, they’re beautiful objects” (participant 9/1).

2. Nontextual Experience in Interactions with E-Texts

Understanding of the e-text included a variety of media and formats, and the experience of the exploration with e-texts was sometimes distinctly “nontextual.” Engagement with electronic texts connected verbal with intuitive and sensory ways of knowing. Some participants talked about similarities between working with electronic texts and playing music, particularly about the resemblance to jazz improvisation emphasizing exploratory nature of interactions with e-texts and the existence of a range of skills that enable creative investigation. Participant 13/1 talked about quick jazz-like explorations in which the scholar “jumps” to possible relationships elsewhere, then comes back to the main theme and its variations. Participant 15/1 also used a comparison with jazz improvisations to answer a question about the creative process of producing an academic text based on e-mail messages:

it’s like asking a jazz musician, how did you come up with that improvised solo in the middle of that last set . . . In this case, the instrument is, the artist is the instrument, which is playing with whatever source material is available at any given time. In this case that would be a cluster of e-mails. (participant 15/1)

Interactions with e-texts promote use of other senses and exploration of ideas that are only partially formulated on a verbal level. Following “tip-of-the-tongue” feelings is an example of how the search may start with a vague verbal definition, which often becomes better defined in interactions with e-texts. In some instances, interactions with e-texts support sensory rather than verbal ways of knowing. The experience of interaction and the process of knowing are perceived as intuitive and multisensory, as described below in relation to the exploration of half-formed ideas:

And multisensory and also temporarily, like, emerging and losing in time, emerging and disappearing in time. That’s the other thing I think, that’s what the [database] is trying to explore in a way, this feeling that . . . that tip-of-the-tongue sensation in a way that ‘Uh! Just for a moment I knew something and then it went away.’ (participant 6/2)

The intuitive or nondiscursive type of knowledge has different qualities, it supports “an intense momentary way of knowing” (participant 6/2), but it can be systematically developed, similarly to the knowledge acquired by dancers and musicians.

Another participant was focused on different systems of meaning in different media that come together in electronic textuality. In the following passage, participant 16/1 talked about poetry, but this comment can be applied to other participants' experiences of interacting with e-texts in other genres:

So it's, to some degree it's bringing together different systems of meaning. It's bringing together music as a system and writing as a system and it's saying that kind of logical sense isn't everything, that there's the sound to the words and to the way we immerse ourselves in text. (participant 16/1)

The task of a literary scholar who analyzes electronic literature moved beyond textual analysis and now includes analysis of aspects of different media and technical aspects of electronic literature such as coding. The way writers work with text for the electronic presentation includes strong visual aspects: "You think of it in a spatial way and you think of writing in a spatial way so to some degree you're almost writing, *you're writing a kind of picture*" [emphasis added; participant 16/1]. The participant pointed out that concrete and visual poetry, for example, experimented with visual elements before, but the Internet "brought it to the fore a lot ... And also, of course ... it's kinetic and that you think about what can happen when a word moves from one point of the screen to another point in the screen" (participant 16/1).

3. Researchers' Responses to E-Texts

A range of thoughts and feelings accompanied interactions with e-texts. Some participants found work with e-texts to be predominantly a positive experience, which enabled them to do more than before. Work with e-texts and the participation in electronic networks of people contributed to a sense of identity for participant 15/1. Participant 3/1 felt empowered by new possibilities commenting that "I find it enormously empowering, for both access to secondary analysis and for access to those texts and images which have been digitised. I know there's a lot out there that hasn't been and it won't be and I know there's a lot of political decisions about what does get digitised, but there is with libraries and hard copies as well ... And I have access to far more than I ever did before."

Participant 5/1 relocated from a place where she had regular access to research materials, but e-texts provided a convenient way of working and made her feel more confident about continuing research away from original primary materials. An additional benefit is that "it probably allows me to look at more sources in a shorter amount of time because it's very easy to do

that” (participant 5/1). The researcher commented that e-texts made her feel closer to the sources of her research.

Researchers’ perception of the adequacy of their skills was an important factor in how they viewed using e-texts. Some expressed confidence in their skills saying “I am an old surfer of the Web” (participant 8/1), and participant 9/1 stated, “I think I’m quite good at that sort of thing,” talking about selecting e-texts from a large number of hits. Participant 12/1 had concerns about the quality of e-texts and said, “That’s the sort of thing I say to my students. But . . . I think I can usually determine for myself whether the source is reliable.”

A number of researchers, however, were uncertain about the adequacy of their skills and practices, making them confused and insecure: “I think it is just more the way the process and the protocols . . . that are kind of being more confusing to me than anything else” (participant 1/1). Participant 14/1 was not sure how to present web addresses neatly and commented in a light-hearted manner: “But this reflects, of course, my ignorance, no doubt.” A number of other participants were not sure what they were supposed to know or do either. One was not sure whether he should have taken more interest in electronic editions, whereas another thought that she probably was not good at doing a particular task. Most participants were not sure what the standards were and what their colleagues were doing. Some opinions were accompanied with statements indicating the lack of certainty about what the acceptable answers may be. Participant 1/1, for example, when asked what she did not like about e-texts, answered, “Portability—and I know it sounds ridiculous . . .” meaning that e-texts could not be physically moved around easily.

Interactions with e-texts sometimes caused feelings of being out of control in situations that ranged from the handling of particular tasks to defining the research project. Participant 7/1 had a sense that an overwhelming amount of available materials was a threat because it became difficult to contain the project within certain boundaries:

Yeah, I guess another sense that, you know when you can search and see that so many things are available that there’s a bit of that sense of being overwhelmed . . . Once upon a time, you were just allowed to be interested in a modest, small thing . . . following the whole passion of academia where you could just be contained. And there’s something about the proliferation of electronic texts that makes that impossible.

How does it affect you?

I think that . . . I just can’t . . . almost like they’re a threat. That somehow or other all that stuff will get you or will slip into your little project or something. (participant 7/1)

The same researcher also feared that “if it’s electronic, it can be wiped. Entirely” (participant 7/1). It is indicative that some other participants

mentioned fear: participant 14/1 in relation to handling references to e-texts and participant 6/1 in relation to e-texts themselves. Other participants commented on being impatient or frustrated by interactions because something did not happen as expected or as quickly as expected.

Considering the sense of insecurity and the lack of control, it is hardly surprising that some participants felt more comfortable with books. While talking about the usefulness of e-texts, some researchers stressed their love of books. Participant 2/2 talked about a more intimate relationship the researcher establishes with a physical object found in traditional ways:

You know, you actually have a relationship to it by finding it. And maybe using index or something, but you actually went, made the step to find the object whereas in an electronic version it's all the same. The file, the .mp3 file, has within it the metatext, which tells you where it is, just magically comes up. (participant 2/2)

At times, there was a sense of contradiction between different responses. Participant 7/1 explained how she was immersed in the electronic world while feeling it was threatening her ability to determine the development and boundaries of her own project:

once I start thinking about it and articulating it, everything I do is an electronic text. Each e-mail I send, each effort to build bridges around my project is done electronically, like 'don't send me that', that's sent by an e-mail. [...] So I'm completely in an electronic world. But, there is ... a sense of, I guess ... I become anxious about not being able to tell the difference any longer between what I want to know and what I should know. Or what they or the force of all that electronic production thinks I should know.

Despite confusion, insecurity, frustration, and the difficulty of pinpointing different aspects of interactions, most participants expressed openness to using e-texts in part due to the attitude of openness to the research enquiry. When asked about a certain use of e-texts, participant 4/1 responded, "Well, it's quite possible I might at some future stage, yes, because with this research you never quite know where it might take you." Another researcher commented, "I think that I am really committed to research, and I am quite happy to research in all sorts of ways." Researchers also demonstrated their openness to e-texts by investing considerable time and effort in preparing their own databases and digital collections to aid their research, by deciding to develop electronic works to be able to present some aspects of their findings. The vibrant tone in participants' descriptions of interactions with e-texts provided vocal evidence of their engagement with e-texts and open-ended research enquiries.

V. E-Texts in the Research Process

Considerations of interactions with e-texts along the continuum of the research process provide a view of the roles that e-texts play from the inception to the close of a project. This approach also provides opportunities to tease out differences between some similar behaviors depending on the goals in a particular research phase. Analysis of types of uses, contributions, and roles that e-texts play in projects provide insights into multifarious ways in which e-texts enhance research processes.

A. Research Process in the Humanities

Academic research is information-intensive work in which information-seeking and use are integrated into all research stages. Research processes in different disciplines in the humanities are likely to have the same general patterns considering similarities between process models across time. For example, Uva's model of the research process in history, developed in 1977, was suitable as a basis for some revisions made by Gilmore and Case (1992). Chu (1999) developed a research-phase model in the work of literary critics based on a study of scholars from a wide range of fields. Chu's comparison of this model with Stone's (1982) model in the work of humanists and Uva's (1977) model of research projects in history identified comparable parts of project development. Brown (2002) found significant similarities between Chu's model and research processes of music scholars, attributing differences between the two models to the nature of the work of literary and music scholars.

Byström and Hansen (2005) considered the dynamic nature of the information-seeking process and found that "the ISP model is, in certain work settings, suitable as both a work task model and a model for the information seeking task" (p. 1055). In the case of the academic research process as an information-intensive task with information-seeking, use, and knowledge production as its integral parts, the ISP model is suitable as a work task model and an information-seeking model.

Most models of information-seeking and research processes show development in sequentially ordered phases, but Case (1991) found that stages do not present the reality of historians' research process, nor that various stages "can go on concurrently, both within and across individual projects" (p. 79). Palmer and Neumann (2002) wrote about "long, unpredictable" paths of inquiry in the humanities, which "often overlap from project to project." This practice "creates a relatively unique path of information seeking for each project" (p. 99). Some of the models presented

in the literature described or directly included the dynamic nature of processes in the models. Foster (2004) compared information behavioral patterns of interdisciplinary scholars with “an artist’s palette, in which activities remain available throughout the course of information-seeking” (p. 228). Brown (2002) also stressed that the process is “iterative, not sequential or linear in nature” (p. 90) and represented the process as a free movement between the stages.

The dynamic nature of the research process in the humanities underpins traditional and electronic research practices, often described as random and serendipitous because of their unpredictable patterns.

B. Research Process in the Study

Development of research projects considered in this study follows Chu’s (1999) model of research phases in the work of literary critics, as in the following: Idea Stage; Preparation Stage; Elaboration Stage; Analysis & Writing Stage; Dissemination Stage; and Further Writing & Dissemination Stage.

A comparison between the use of primary sources in Chu’s model and the use of e-texts in this study showed that Chu’s model was applicable to descriptions of both literary and historical projects carried out by participants. The data strongly supported views from the literature that the research enquiry is a dynamic rather than a sequential process.

Chu’s observation that the idea stage can be based on previous research was confirmed in this study. The initial idea can start in unexpected ways in situations outside the context of a specific research project. For example, participant 7/1 saw an intriguing poster during a holiday trip, then kept the poster at home, collected pictures, and read around the topic of the poster for 10 years before she formally started the project when she received a research grant. In short, researchers often did not know where initial ideas would lead while they collected information, but significant ideas were often formed long before formal engagement in a research project. Researchers said that they would follow a lead wherever it took them and that they would do whatever was needed to be done. While observing limitations in time and resources, they generally approached research as an open-ended process.

In the preparation stage, the emphasis is on intensive collecting of material that may have relevance to a topic. Some researchers started to prepare their own textual databases for further interrogation at this stage and used e-texts to familiarize themselves with holdings of physical collections and organize trips to these collections.

The elaboration stage is mostly a mental process, but e-texts were used to aid the formulation of the research focus. Some researchers worked on formulating an approach to interrogation of textual databases while they were making decisions on how to investigate the topic. This involved some experimentation with searching textual databases.

Variety of Investigation becomes important during the analysis and writing stage. Although researchers knew the focus of their projects, they actively looked for a wide range of evidence, including alternative and contradictory sources. During the writing stage, some researchers looked for information that would be incorporated in novel ways and they worked in creative ways with e-texts. This was particularly the case in creative writing projects, but the process of assembling a piece of academic writing was often described as exploratory. Some participants decided toward the end of the project that they needed to present their findings in different forms such as electronic outputs as well as traditional academic papers to present different aspects of their work. Conclusions arising from collected information remained unsettled until the last stages of the project.

Some changes were made to the last two stages of Chu's model after analyzing the study data. For the purposes of this study, Chu's stage 4, analysis and writing, was renamed as analysis and presentation of results, because participants discussed presentation of research results in different formats, such as journal articles and books as well multimedia works and exhibitions.

The last two stages of Chu's model, the dissemination stage (5) and further writing and dissemination stage (6), were contracted into one, called *dissemination and further presentation of results*. A large part of the data from this study related to active projects, which had not reached the final stages. Data about finished projects suggested that different phases of dissemination were not significant for purposes of this study. Therefore, the research stages used to present findings in this study are as follows:

1. Idea stage
2. Preparation stage
3. Elaboration stage
4. Analysis and presentation of results stage
5. Dissemination and further presentation of results stage

Projects by the researchers in this study generally went through the outlined stages, but some could have been completed earlier as part of another project. Research phases could not be completely omitted, but they could be repeated at any time and in any order. Tasks undertaken in different

projects could be combined to complement each other so that stages from different projects could be connected. Participant 12/1, for example, talked about a project based on years of research in the same subject area. The researcher said that she wanted to write a book in which she could put insights from previous projects into a bigger picture. The work on the book was complemented by another parallel project on a textual database. She explained the connection between the book, her previous projects, and a current complementary project in acknowledgments in her book. Participants 15/1 and 16/1 talked about academic and creative work in different projects that used results of one project to approach them from a different perspective in another project. Strong links between different projects were described by a number of other participants as well. Although linear representation of the research process does not show its dynamic nature, it was used to make the representations of uses and roles of e-texts clearer.

C. E-Texts in Research Stages

Comparison of the use of e-texts with the use of information and primary sources in Chu's model revealed that some aspects of use of e-texts were present, which were not in Chu's study. Table 4 outlines characteristics of stages and the use of primary source in Chu's model and the use of e-texts in research projects in the study.

1. In the idea stage, Chu noted the use of information to define or develop one's ideas, but did not include the use of primary sources (Chu, 1999). Chu found minimal use of information at this stage. Study of e-texts in projects in the humanities indicated that interactions with e-texts, particularly searching, have a role in supporting the development of ideas. Scholars searched e-texts to see what was available, to get trends and explore ideas while thinking about the topic. According to study participants, e-texts used or produced for previous projects also influenced their thinking about a new project.
2. In the preparation stage, some additional aspects of the phase described by Chu were noted in relation to the e-text use:
 - using online collections to plan further research,
 - additional support in working with hard copies and in archives, and
 - preparation of own e-collections.

Text analysis is used for the initial exploration that would provide a basis for further work.

3. The elaboration stage included considerations of the ways to interrogate textual databases to explore questions.
4. In the analysis and presentation of results stage, Chu found "extensive use of information with slight to moderate amounts of information searching" (p. 261). Analysis in the study showed that
 - more intense use of e-texts, including different types of searching, happened in this and the preparation stage,
 - researchers' analysis was sometimes based on interrogating textual databases,
 - e-texts had a stronger and more direct role in writing than identified in Chu's model, and

Table 4
 Chu's Model of Research Phases and E-Texts

Chu's model (Chu, 1999, pp. 259–260)	Use of e-texts in this study
<p>1. Characteristics of idea stage</p>	<p>Search e-texts</p>
<p>Generation of idea</p>	<ul style="list-style-type: none"> ● To support thinking about ideas, 'follow hunches'
<p>Initiation of project</p>	<ul style="list-style-type: none"> ● To get trends; see what is available
<p>Initial formulation of idea</p>	<ul style="list-style-type: none"> ● To formulate project
<p>Decision on literary texts for study</p>	<p>Netchaining to gather and clarify information</p>
<p>Discussion of idea(s) <i>Minimal use of information</i></p>	<p>To develop ideas over a long period of time</p>
<p>2. Characteristics of preparation stage</p>	<p>To gather material</p>
<p>Searching for primary and secondary materials or resources</p>	<p>Text analysis</p>
<p>Using/reading primary and secondary sources</p>	<ul style="list-style-type: none"> ● To locate information and work with hard copies
<p>Taking notes from primary and secondary sources</p>	<ul style="list-style-type: none"> ● To explore ideas
<p>Trying out idea(s)</p>	<p>Explore broadly</p>
<p>Application for funding</p>	<ul style="list-style-type: none"> ● To follow hunches, possible relationships, compare contexts
<p><i>The highest use of information</i></p>	<ul style="list-style-type: none"> ● To find clues and pointers ● To clarify meanings of unknown words/names/events
	<p>Work with traditional sources and e-texts</p>
	<ul style="list-style-type: none"> ● To complement work in archives, supplement what is not available in hard copy
	<ul style="list-style-type: none"> ● To plan further research
	<ul style="list-style-type: none"> ● To prepare own digital library or database

<p>3. Characteristics of elaboration stage</p> <p>Thinking of focus for each section of the work</p> <p>Mapping/sketching idea(s) for work, creation of an outline</p> <p>Organization of notes to represent structure of work or create shape of argument</p> <p>Discussion of idea(s)</p> <p>Application for funding</p> <p><i>Mainly a mental process</i></p>	<p>Use of information</p> <p>To determine what will be central and what will be peripheral to the study</p> <p>To focus more precisely on the exact area of interest</p>	<p>Parallel with the preparation stage or break during the preparation</p> <ul style="list-style-type: none"> ● To get intellectual grasp <p>Selection of material to think about support for own argument</p> <ul style="list-style-type: none"> ● To decide how to explore research questions by text analysis
<p>4. Characteristics of analysis and writing stage (Chu)</p> <p>Drafting the work</p> <p>Revising the work</p> <p>Obtaining help with work</p> <p>Searching for more information</p> <p>Re-reading text(s), notes and other materials</p> <p>Preliminary exploration of dissemination channels</p> <p><i>Extensive use of information with slight to moderate information searching</i></p>	<p>Use of information</p> <p>Re-reading text(s), notes and other materials</p> <p>To verify a citation</p> <p>To see if there are “connections” which may have been missed</p> <p>To refamiliarize oneself with the information because time has elapsed between the last reading of materials and start of writing</p> <p>To obtain more support for argument of work, for example, quotations, answers, images, themes</p> <p>Searching for more information</p> <p>To know about something that is still unclear</p> <p>To obtain more support for argument of work, for example, quotations, answers, images, themes</p> <p>To see if there are any new developments</p>	<p>Collect additional information, go back to material and notes from previous projects, go back to known e-texts, participate in online discussions about new issues</p> <ul style="list-style-type: none"> ● To find evidence for argument ● To make connections and explore patterns ● To be used creatively ● To add factual details, additional point of view ● To fill in gaps, write explanatory notes, inform someone working on a section of a project <p>Work with personal digital library and printouts:</p> <ul style="list-style-type: none"> ● e-poetry—look over and over again; codes ● occurrences of certain words ● interrogate texts to explore research question ● analyze text from printout <p>To analyze</p> <p>To explore patterns</p> <p>To check different translations (combination of textual database and analog materials)</p> <p>To aid document and information retrieval</p>

Table 4. (Continued)

<p>Chu's model (Chu, 1999, pp. 259–260)</p>	<p>Use of e-texts in this study</p>
<p>5. Characteristics of dissemination and rewriting stage (Chu's 5 and 6 combined)</p> <p>Exploration of dissemination channels</p> <p>Publication or presentation of work</p> <p>Application for funding</p> <p>Exploration of dissemination channels</p> <p>Searching for more information</p> <p>Reading and/or re-reading text(s), notes and other materials</p> <p>Re-writing of work</p> <p>Publication or presentation of reworked document</p>	<p>To check details, copy quotes and bibliographic details</p> <p>Monitor digitization projects and certain web sites</p> <p>Introduce various aspects of e-texts in writing, remix e-texts to combine creative and analytic processes; to enhance understanding</p> <p>Order pictures and confirm publication rights; check newspapers and images at book production stage</p> <p>Use of e-texts</p> <ul style="list-style-type: none"> ● Pirate online dissemination to provide alternative dissemination ● To find additional material ● To add primary material (testimonials and blogs) <p>Use of information</p> <p>To refine the argument of the study</p> <p>To improve the content of the study</p> <p>Reading and Re-reading text(s), notes and other materials</p> <p>To find more support for argument of work, for example, quotations, answers, images, themes</p> <p>To see if there are "connections" which you may have missed</p> <p>To verify a citation</p> <p>To refamiliarize oneself with the information</p> <p>To help in modifying argument</p> <p>Searching for more information</p> <p>To see if there are any new developments</p> <p>To follow up on leads which have not yet been checked</p> <p>To search for critical work to incorporate</p>

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- e-texts aided preparation of manuscripts for publication (e.g., reproduction of images and confirmation of publication rights).
5. During the dissemination and further presentation of results stage, online delivery of published works may provide an alternative dissemination channel.

This study indicated that e-texts aid technical aspects of conducting a research project and have a more direct role in intellectual aspects of the research process, such as formulation of research questions, refining a research approach, analyzing texts, and presenting research results.

D. Uses of E-Texts

The following four types of uses were found in the research projects:

1. *Supplementing* a document, when e-texts were used to supplement or replace primary material in hard copy.
2. *Locating*, when e-texts were used to locate relevant information and documents.
3. *Exploring*, when e-texts were used to investigate ideas and evidence contained in a range of documents. Researchers accessed as many documents as possible and brought these documents together to reveal patterns and common threads.
4. *Analyzing text*, when researchers worked with one single text or a thematic textual database to investigate connections between ideas and linguistic expressions. Analysis may involve stylistic analysis or tackling various linguistic expressions to reveal ideas. Focus is on revealing connections and meanings in the text.

1. Supplementing

E-texts were used to supplement or substitute for hard copies. Researchers who used e-texts as a supplement, said,

I used electronic texts a reasonable amount, actually, a reasonable amount, to supplement the books that I was using. (participant 6/1, 1)
 it was still a supplement to my own original research in the archives. (participant 5/1, 5)

Participants who used e-texts in this way searched text for a particular passage, browsed the content, read it online, and printed it. E-texts provided content and it was used in a similar way to hard copies. In this use, evaluation of e-texts was often based on the comparison with hard copies. Participant 11/1 described using an electronic copy of a book as a substitute for hard copy, which was not available to the researcher. As the e-text appeared to be a reliable reproduction in a pdf file from a library, trustworthiness was not an issue.

E-texts were used to supplement work in physical collections and archival materials when the researcher was elsewhere. Certain web sites were visited regularly to monitor the appearance of new texts, which would supplement or substitute for hard copies. In 4 of 30 projects, e-texts were used only to supplement hard copies. These were three historical and one literary project described by three participants. Two participants said that they normally used e-texts in this manner.

2. Locating

Use of e-texts by researchers for locating relevant information and documents aided the research process. Participants searched a variety of sources to find relevant documents and information. Locating use involved searching, netchaining in a form of an online version of traditional chaining, evaluation and selection, reading on- and off-screen, downloading of retrieved e-texts or preparation of researchers' own e-texts, investigating the topic to support traditional creative writing, and copying and pasting of text in writing. Researchers also used e-texts to locate factual detail, to compare details of different versions of a text, and to find evidence for their argument.

Locating provided a convenient way of searching for and accessing information. Sometimes e-texts provided texts that were not available from other sources, but the use did not change the intellectual engagement with the topic in comparison with working with hard copies. Participant 10/1 used e-texts extensively to locate particular information and textual passages and described the advantage of this type of use of e-texts: "it is much easier to both store, and search and access materials in electronic form than it was in a handwritten form. But the key techniques are very much the same" (participant 10/1).

The difference between searching in *locating and supplementing* is that for supplementing, researchers went to a specific source, where they expected to find a particular passage or document. Locating involved searching across a variety of sources to find relevant documents and information in them, which might not have been known in advance. In six projects in literary studies, e-texts were used for locating information and documents. Supplementing uses occurred as well.

3. Exploring

E-texts were used by researchers for exploring during investigation of research topics. Exploration of patterns and connections, which was described earlier in relation to the investigation of a topic, is found in this category of projects. A broad range of available sources and search engines enabled

different approaches to explore research interests. This type of use can involve all practices described in the section “Interactions with E-texts”, including the full range of netchaining activities, not just the electronic form of traditional chaining, which was the case in the locating use. Exploring was used to follow half-formed ideas in interactions with e-text, along with retrieval of large amounts of materials from different sources to investigate connections and patterns of information. This type of use also promoted the introduction of different voices and perspectives.

In supplementing and locating, retrieved documents and information helped the research process and provided needed texts. Participants’ descriptions of the process suggested that thinking happened “outside the screen.” In exploring, investigation and thinking happen through searching and interaction with e-texts. Researchers who used e-texts for exploring described how they interacted with e-texts:

So there’s a movement backwards and forwards between a whole range of sources, not a substitute (participant 3/1)

through the project I became more and more reliant, really, on search engines. Not for the final conclusive material necessarily but to help me see patterns. (participant 13/1)

E-texts were used to explore ideas and evidence and to establish patterns and connections in 12 historical projects. Locating is a necessary part of the exploring type of use and supplementing appeared in these projects as well.

4. Analyzing Text

Text analysis is a study of textual material, including e-texts, aided by a digital representation and encoding. Although various tools for text analysis can be used to find words, patterns, generate statistics or create visualization, study participants reported the use of a search engine only.

Investigation of the topic included the production and interrogation of textual databases as well as exploration of electronically born literature. Some participants talked about text analysis as an ongoing activity. For example, the analysis of e-poetry has been a regular activity for a literary critic (e.g., participant 16/1), interrogation of a textual database happened whenever a researcher had a question on mind (e.g., participant 8/1) and a database created for an earlier project was regularly used to support thinking (e.g., participant 13/1). Interrogation of a textual database enabled finding evidence to confirm a hypothesis. An example of working with the database of literary motifs described to illustrate the development of personal databases belongs to this category of use. This type of use also involved text

Locating. Participant 10/1 has had a large collection of primary materials in electronic and analogue forms. He used transcribed interviews and other e-texts to locate information and find pointers to retrieve documents in analogue form (for details about the collection, see *Developing collections of own e-texts*).

Exploring. Participant 3/1 developed a collection of transcribed interviews, downloaded e-texts and other materials. Her main interest is in exploring connections between a wide range of materials. The researcher worked with transcribed interviews to reveal ideas. She also used her digital collection to locate information.

Analysing text. Participant 8/1 used a textual database to aid the exploration of ideas. He looked for linguistic expressions in the texts and analysed their distribution to provide evidence for a hypothesis. He also used the database to aid information retrieval in materials in analogue form.

Figure 1 Different uses of researchers' own digital collections.

manipulation in creating a new work. Analyzing text assists intellectual engagement with a research topic.

E-texts were used for analyzing text in eight projects: three in historical and five in literary studies. Some participants created databases for their own use to support text analysis. All other types of uses were reported by participants who discussed this use.

Textual databases developed by researchers were often used for analyzing text, but these databases could support other uses as well. Figure 1 shows examples of different uses of digital collections and databases developed by researchers. The supplementing use does not appear in the comparison, because researchers who used e-texts only for supplementing did not talk about developing their own digital collections.

5. Complexity of E-Text Uses

Levels of e-text use grow in complexity. Supplementing is the basic use type of use. In a small number of projects, e-texts were used only to supplement hard copies. In some projects in which e-texts were used for locating, supplementing was described as well. In projects that used e-texts for exploring and analyzing text, all four types of uses were reported as well.

Four types of uses make contributions to the projects by assisting in (1) finding particular documents and information (level one: supplementing and locating) and (2) finding patterns and connections (level two: exploring and analyzing text). Finding particular documents and information means that a researcher used e-texts for some input needed for research, but intellectual

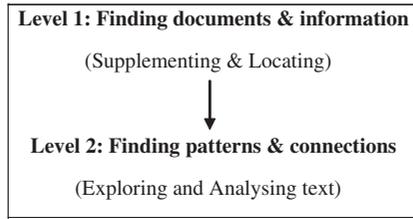


Figure 2 Two levels of e-text's uses.

engagement with the topic is not changed by the unique functionality of e-texts. Finding patterns and connections, on the contrary, relates to uses that directly contribute to the understanding of the topic. The unique characteristics of e-texts enable intellectual engagement with the topic that is not possible or is too difficult to be practical by using hard copies. Level two uses included level one uses as well. [Figure 2](#) represents the growing complexity of e-texts uses, which does not relate in any way to the complexity of projects.

[Table 5](#) summarizes how different aspects of use contribute at different stages of the research process. Research phases used in the table are a modification of Chu's model. The table was developed by overlaying two levels of use with research phases. Uses are divided within the stage to outline the growing complexity of interactions. For example, e-texts may be searched to find relevant material in level one uses. On level two, they can be also searched to find trends and explore ideas. Some contributions appear in level 2 uses only. Ongoing activities are added to research phases because they may inform all projects conducted by a researcher.

6. Disciplinary Differences

The uses of e-texts indicated possible differences between literary and historical studies. Although it is possible that they appeared accidentally, disciplinary differences are likely. The differences could relate to different research approaches and to limitations of existing e-texts and tools for the two different fields. E-texts were used primarily for exploring in historical projects and for locating in literary projects. The study did not explore reasons for the differences, but it is possible that they are based on different ways of working with primary materials in literary and historical studies. Literary scholars usually need to find particular texts and then analyze them in depth. Historians are often interested in everything related to the topic, so they can find, they can find connections, gaps, and disagreements between different sources.

Table 5
Uses of E-Texts in Projects

	Uses of e-texts: Level 1	And	Uses of e-texts: Level 2
1. Idea stage	Search e-texts to see what is available	+	Search to get trends, explore ideas Use of e-texts from previous work
2. Preparation	Search e-texts to gather relevant material	+	Netchaining; selecting e-texts authored by the researcher to gather relevant material
	E-texts used to complement work in archive; prepare and work with own e-collections	+	Use of online collections to prepare visits to physical collections; use pointers in data from textual analysis to work with hard copies Explore research topics
3. Elaboration	Choosing search strategies for more focused search to retrieve documents and information	+	Choosing search strategies for analysis Elaboration while analyzing pilot interviews and searching Locating information that will support own argument
4. Analysis & presentation of results	Checking and clarifying details		
	Monitoring appearance of e-texts		
	Filling in gaps and background		
	Working with own digital collection to retrieve documents & passages	+	Working with own digital collection: all possible searches to support analytical processes
	Analysis: e-texts read, checked to refresh memory	+	Analysis: combination of information gathering, analysis and writing; word occurrences to confirm hypothesis; analyzing patterns in searches; analyzing e-poetry

Table 5. (Continued)

	Uses of e-texts: Level 1	And	Uses of e-texts: Level 2
	Writing: copying passages; ordering materials	+	Writing: bringing different voices into writing; elements of electronic textuality in traditional writing; remix methodology
5. Dissemination & further presentation of results			Adding primary data from testimonials and blogs
Ongoing activities	Monitoring for current awareness Checking details	+	Ongoing netchaining

It is possible that a literary historian or a literary scholar working on a theoretical project may want a wider variety of materials in which she/he would follow patterns in a similar way to how historians conduct their research. There are two possible reasons why the literary scholars in the study did not use e-texts for exploring. Firstly, there is a limited range of literary texts available online. Some literary scholars in the study (e.g., participants 1/1 and 11/1), who worked on projects with a significant theoretical component and required a range of texts, stressed that materials which they needed were either not available because there was not a great deal of interest in them or because copyright arrangements made digitization impractical. Secondly, the existing texts have limited value for literary scholars if they cannot be brought together for searching and if special software tools are not available for analysis. Analyzing text requires focused work with texts. It is indicative that the study participants in both disciplines conducted text analysis offline unless they worked with electronic literature.

Keyword searching may have a different value in literary and historical studies. The use exploring involves keyword searching across a wide range of texts, which may be less useful in studying literature than history. For example, participant 1/1 talked about “searching beyond the obvious” and inability to retrieve relevant information hidden in relationships between literary characters and their characteristics. Participant 12/1 developed her own database of literary motifs to support exploration of relationships that could not be revealed by simple keyword searching.

There is a limited provision for textual analysis of large bodies of online materials. Large online databases with special analytical tools such as *Perseus Digital Library* provide valuable resources and tools, but they are available only in a small number of fields. More sophisticated ways of exploring a wide variety of texts would be useful in historical studies, but it seems that historians are currently in a better position to use e-texts for exploration than are scholars in literary studies. The use of specialized textual databases for analyzing text in both disciplines points toward the need for further investigation.

7. Uses and Accompanying Thoughts and Feelings

Uses of e-texts have been considered in relation to comments about a particular use, in the context of a whole research project and in relation to the categories with data about participants' attitudes and affective responses. The analysis showed that participants' comments about some thoughts and feelings featured in relation to different types of uses.

An attitude of openness to different research approaches and positive feelings associated with the use of e-texts were reported in relation to all types of uses. Participants who used e-texts mostly for supplementing and locating perceived traditional research methods and analog materials as the most important in their research. Although many participants mentioned their love of books, some researchers who used e-texts as a supplement to hard copies also said that they were more comfortable with materials in analog form. Some of the participants who used e-texts for locating discussed their belonging to the "old school," which promoted values of the traditional library and book.

Participants who used e-texts for exploring felt overwhelmed with the amount of irrelevant material while appreciating the richness of available e-texts. Feelings about the inadequacy of the researcher's own skills were mentioned by participants in all types of uses except analyzing text. People who used e-texts mainly for analysis were more likely to express impatience and frustration when something did not work as expected in relation to any interaction with e-text.

Table 6 summarizes types of thoughts and feelings that were mentioned in relation to four types of uses.

Study participants who discussed only level 1 uses expressed either their preference for traditional research or talked about the advantages of traditional research, although they found e-texts useful and often enjoyable. The researchers who reported level 2 type of uses talked about the limitations of traditional research, advantages of electronic research, and emergence of new academic styles, genres, and disciplines, although they expressed

Table 6
Uses, Thoughts, and Feelings

	Supplementing	Locating	Exploring	Analyzing text
Traditional research and hard copies preferred	✓	✓		
Comments about limitations of traditional and advantages of electronic research			✓	✓
Comments about participants' relation to the emergence of new disciplines and styles			✓	✓
Open to all sorts of research	✓	✓	✓	✓
Positive feelings related to e-texts	✓	✓	✓	✓
Negative feelings related to dealing with amount of information and feeling out of control			✓	
Inadequacy of one's own knowledge & skills	✓	✓	✓	
Impatience				✓
Expectations and interpretations of availability			✓	

negative thoughts about e-texts and electronic scholarship as well. These differences associated with the two levels of use may indicate that level 2 uses were associated with more prominent electronic forms of research, with a stronger integration of e-texts in different activities, and a greater likelihood of thinking about electronic research as a distinct form of scholarship.

Participants who reported using e-texts for exploring also commented on the availability of e-texts and feelings of being overwhelmed with the

amount of information, possibly because of frequent interactions with large bodies of text. Researchers who talked about analyzing text felt impatient at times, but it was the only use that was not associated with feelings of inadequacy. Possible explanations are that only confident researchers undertake this sort of work or that any feeling of inadequacy disappears in this type of interaction. Intense work on a smaller range of text allows researchers to have a sense of control and engagement, which may inspire feelings of confidence.

E. Contributions of E-Texts to the Research Projects

Contributions of e-texts in the projects are realized through scholars' interactions with and uses of texts. Four main contributions of e-texts emerged from the study. First, *Support in finding documents and information*. Computer search capabilities combined with the provision of full-text documents assist information discovery. E-texts provide support in information retrieval and discovery of primary materials. They lead to other sources, help in working with analog sources, supplement hard copies, and contribute to the current awareness. This is the most fundamental contribution. All participants who discussed interactions relating to the following three contributions used e-texts for retrieval of documents and information. Not only do information discovery and retrieval provide a basis for all other contributions, but the nature of scholars' interaction with e-texts during the retrieval underpins other contributions to a large extent (e.g., contribution 3). Second, *Aid in managing the research process*. Access to e-texts allows scholars to plan visits to remote collections; aids the publication process and provides sources for some research activities such as ordering digital images, confirming publication rights, and exchanging files with collaborators and publishers. Third, *Aid in investigation of the topic*. The multiplicity of sources, formats, and textual information that could be quickly brought together is a basis of exploration that allows scholars to see different meanings and aspects of the topic. This helps scholars to identify trends, recognize issues, explore hunches, and work on formulating and confirming hypotheses by text analysis. A range of unique online sometimes provides support for arguments or evidence for a point of view that is difficult, if not impossible, to identify in other ways. Fourth, *Contribution to writing and presenting research results*. E-texts allow copying and pasting of passages, which improves the speed and accuracy in writing. Traditional academic writing was affected by electronic textuality, which influenced a range of changes from subtle alterations in presenting an argument to generating more radical combinations of academic and creative writing styles. These new styles of writing tend to blur traditional distinctions

between emotional and rational, and creative and academic styles. Interactions with e-texts also encourage considerations of alternative modes for presenting research findings that do not fit traditional academic genres. Producing e-texts becomes an option for presenting research results that cannot be presented in other ways.

F. Roles of E-Texts in Projects

The four types of contributions of e-texts have two roles in research projects, depending on how they support the development of the project. They are as follows:

- aid in providing basis for research (support roles) or
- aid in exploring the topic and presenting research findings (substantive roles).

1. Support Roles

E-texts provide the basis for research, or play support roles, when they make the research process quicker, easier, and more accurate. The first two contributions, support in finding information and aid in managing research process, have support roles. The fourth, contribution to writing and presenting research results, has a support role when e-texts help in improving speed and accuracy. [Table 7](#) provides some examples of comments about support roles.

Table 7
Comments about Support roles

“To reproduce that [electronic search for information in e-texts] on paper version will take years of searching and you’ll still probably miss most so there are certain kinds of searches which you can do electronically and only electronically”
(participant 10/1)

“It hasn’t influenced my interpretation. It hasn’t influenced my methodology or interpretation I think at all. What it has influenced is the level of accuracy”
(participant 14/1)

“If I wanted to be absolutely sure when I have the page proofs in front of me, I’ll just zap into the Internet and check a date or a spelling or a title or something like that” (participant 1/1)

About an electronic edition used to check the textual details: “I don’t think that the fact that the standard edition was available in electronic form made me work in any different way from what I would’ve done had I used it only in print form because in the form I have it, it’s not interactive” (participant 12/1)

Table 8
Comments about Substantive Roles

-
- “Now, we couldn’t have even begun to do those searches with the limited amount of time and resources, if we were doing them in hard copy. And we wouldn’t actually have imagined making those sorts of links because it wouldn’t be simple to do so we wouldn’t have even bothered.” (participant 3/1)
- “One of the things that electronic text does allow is pursuing the sort of question that just’d be so uneconomic to ask, going in fishing, pot luck, to see what turns up.” (participant 6/1)
- “But even in those days, it allowed you to ask questions you wouldn’t bother asking otherwise because it would take too long to find out and you wouldn’t know whether the answer was significant.” (participant 6/1)
-

2. Substantive roles

E-texts aid in exploring the topic and presenting research findings, or play substantive roles, when they take part in shaping the scholar’s thinking process. The third contribution, aid in investigation of the topic, has a substantive content-oriented role. In contribution to writing and presenting research results, e-texts play a substantive role when they influence the writing style and presentation of research results. Table 8 provides some participants’ comments about substantive roles.

3. Roles in Research Phases

E-texts play a role in each phase of the research process. Three contributions (support in finding documents and information, aid in managing the research process, and aid in investigation of the topic) are present in all phases, whereas the fourth, contribution to writing and presenting research results, is apparent during the phase “analysis and presentation of research results.” In the idea stage, e-texts in support role aid information retrieval, whereas e-texts in substantive roles enable identification of trends and following half-formed ideas and hunches. During preparation, e-texts substitute for unavailable hard copies, enable information-gathering, and assist in organizing trips when they play support roles. In substantive roles, they aid exploration of relationships and support decision-making about research.

E-texts do not play a support role during elaboration but interactions with e-texts have a substantive role when they contribute to the formulation of research focus through preliminary text analysis. The phase of analysis and presentation of results is supported by interactions with e-texts for supplementing and information retrieval, for example, when e-texts play

support roles. E-texts in substantive roles aid understanding of the topic and influence writing at this stage. In dissemination and further presentation of results, e-texts play support roles by providing additional information.

Table 9 outlines support and substantive roles in the research process.

None of the study participants, even those who initially thought that their interactions with e-texts were very limited, used e-texts in one way only. An assessment of the roles of e-texts, which does not take into account a variety of these seemingly simple engagements, is likely to miss their cumulative effect.

The unique qualities that e-texts brought to a number of research projects can be illustrated by the participants' use of their own textual databases and collections and by their choices for the presentation of research results. Half of the study participants (eight) developed e-texts, and four of them put a great deal of time and effort to developing textual sources designed to support the investigation of a particular topic. Some of these databases and collections played support, some played substantive roles, but they provided a unique functionality for the researchers when they decided to put the time and effort required into the development of these sources, usually for personal use only. Palmer (2005, p. 1146) saw digital resources created by researchers as "indicators of how scholars wish to engage information technology in their research". As this study indicated, thematic textual collections may provide a significant form of engagement with e-texts.

Production of e-texts and multimedia for the presentation of research results is another area in which researchers showed that e-texts brought some unique qualities to their projects. It seemed that the interactions with e-texts brought a new dimension to research or emphasized the awareness that some aspects of research could be appropriately explored and documented only by electronic media. Although in some cases the awareness of new research possibilities may be attributed to the general discussions in the scholar's field, many of the study participants clearly stated that e-text use was not discussed in their area of research. Scholars' initiatives in using e-texts often related more to their own sense of what was needed in their research rather than to any other influence.

VI. Challenges and Aids in the Electronic Environment

Humanities researchers use a wide range of materials from all periods, and therefore, availability and accessibility of materials are significant issues in the provision of adequate online environments for them. Content and scope of online materials, speed, savings in scholars' time, and convenience are

Table 9
Roles in Research Phases

Stage	Support roles	Substantive roles
Idea stage	(1) IR (broad)	(3) Aids initial exploration to formulate project—identifying trends, following hunches and half-formed ideas; insights for reflection
Preparation	(1) Substitute for unavailable hard copies; supplement archival material	(3) Aids exploration of relationships, presences and absences, issues, comparison
	(1) IR (detailed; collecting scattered texts in own database)	(3) Supports decision-making during preparation of own textual database
	(1) Lead to information and aid work with hard copies (after interrogating database to explore ideas)	(3) Helps in formulating or disregarding hypothesis
	(2) Aid in assessing physical collections and organizing trips	
Elaboration		(3) Aids in formulating focus (selection, preliminary analysis)
Analysis and presentation of results	(1) Supplement/substitute for hard copies (checking details, refreshing memory)	(3) Provides material for thinking about ideas (after locating)
	(1) Provision of current information through monitoring	(3) Supports exploration of ideas and connections during analysis; analysis of e-poetry; confirmation of hypothesis; analysis of patterns in results of searches (text-analysis)
	(1) IR—checking details, finding additional information, alternative point of view; search own database	(3) and (4) Aids the combined process of information gathering, analysis and writing

Table 9. (Continued)

Stage	Support roles	Substantive roles
	(2) Support ordering materials, confirming copyright; provision of sources	(4) Influence on writing—remix methodology; introduction of different voices; nonlinear elements
	(4) Copying quotes and bibliographic details	(4) E-text used to present results
Dissemination and further presentation of results	(1) IR—additional information, primary data	
Any stage	(1) IR—current awareness	(3) Provision of insights for reflection
	(1) Provision of primary data (testimonials, online forums)	

LEGEND. Contribution (1): Support in finding documents and information; Contribution (2): Aid in managing the research process; Contribution (3): Aid in investigation of the topic; Contribution (4): Contribution to writing and presenting research results; IR: information retrieval.

critical issues for adoption (Andersen, 1996; Gardiner *et al.*, 2006; Palmer, 2005; Wiberley and Jones, 2000), while limited access and availability of materials are obstacles (The British Academy, 2005). Problems related to equipment or software include poor search engines, slow response time, difficulty in navigation, and frequent format or interface changes (Dalton and Charnigo, 2004). The scholars' own lack of knowledge and training have also been recognized as obstacles (Dalton and Charnigo, 2004; Ellis and Oldman, 2005). Interactions with e-texts are enhanced if there is a range of available materials that are easily accessible and presented in a way that supports researchers' technological skill levels. However, each of these aspects is complex and imposes a number of challenges as well.

A. Search for Information in E-Texts

As knowledge and information are contextual, what constitutes useful information depends on a particular person in a given situation. Considering that researchers in the humanities tend to work with a wide variety of materials to form their own interpretation, it is hardly surprising that the study participants found different aspects of e-texts informative. Information

can be contained in anything—from personal experiences to “seemingly banal things, like a box of toffees called Captain Cook Toffees” (participant 7/1). Everything a researcher reads and sees forms the background that becomes a source of information. Participant 1/2 said,

In the past, if I'm researching a novel at home, I have a filing cabinet full of folders with things I cut out of the newspaper, with photos of people that I think my characters might look like, with addresses and maps and all sorts of things that I used to create a kind of portfolio background material. So I would use the Internet in a very similar way to that.

Researchers' interest in a particular aspect of a topic and their interpretation of a pattern also shape their searches. The search for relevant information may be for particular aspects of texts that cannot be identified easily. Participant 1/1 talked about the difficulties of finding key texts that could not be discovered through bibliographic records or plot summaries. For example, a researcher mentioned discovering a key literary text with a narrative part that enhanced a particular aspect of the research topic. Participant 7/1 searched an online newspaper archive and discovered a picture with accompanying text which became a key source in the project, not because of the meaning in the original context, but because the source provided context for the researcher's interpretation. As participant 1/1 called it,

if the book was called *Sue Smith's dilemma* and there was nothing in the blurb that suggested her father was, for example, a [war] veteran and this was critical to the text, then it would fall through the web, so what we would need to do once we get this initial bibliography done, really go out and *search beyond the obvious*. [emphasis added; participant 1/1].

Researchers often searched this way. Even a simple search for factual information may quickly move “beyond the obvious” when the researcher becomes interested in interpretation and different contexts in which factual information appears. Flexible searching across full-text documents supports the search for information, but various boundaries of disciplines and ownership impose limitations to searching.

Although the disciplinary lines have been often reinforced, the line between data, information, and creative work may be difficult to establish and maintain. Participant 15/1 talked about poetic metadata and described creative work based on available sources as a way of creating metadata:

Well . . . you have the data and then you remix it and shape it in your own stylised signature effects, which you bring to the Net. And by doing that you're, being self-aware of the way you are doing it, you're creating some kind of metadata experience. (participant 15/1)

When the creative work is based on mixing and reshaping sources, it becomes more evident that the creative use of data says something about data, and therefore, the researcher called the creative interpretation poetic metadata.

B. Availability

In considering aids to the use of e-texts, the central question is what e-texts are available and how they are made available. Participant 12/1 saw the availability of scholarly sources through the university network as the central issue when she discussed barriers to the use of e-texts. Participant 10/1 mentioned web site on which the Biblical text was available in several languages, with commentaries and oral recordings. The researcher pointed out that this single web site replaced a whole theological library. The availability of relevant sources can compensate for limitations encountered during their use. Participant 11/1 spoke about the lack of flexibility in interacting with a particular text he used and the physical discomfort of reading from the screen. However, the fact that the text was available compensated for its limitations.

Participants appreciated the availability of different editions of the same text (participant 12/1) and original documents rather than specific editions (participant 7/1). Researchers preferred to have page images to examine details of originals as well as searchable transcriptions. Participant 3/1, talking about an online newspaper archive, said that its limitation was lack of the whole context of page with the layout, advertisements, and other details, but he still thought searching across the database was valuable. Transcripts and images have their advantages, but for manuscripts, both transcription and high quality images are required.

It was preferable to have more than one way of seeing text (e.g., images and transcripts and different editions), although it was doubtful that e-texts can ever provide the variety that may be needed in research. Participant 6/1 said that at times he needed a particular copy of a book or manuscript because he was interested in the owner or particular annotations. Although the researchers needed a very detailed representation of texts, even abstracts and summaries were helpful in making a decision about ordering material.

Availability of a wide range of texts meant that there were lots of materials that were not perceived as valuable in any way. However, the variety was appreciated because it provided unique material, which was used to access different accounts of a story, view different perspectives, and gather accounts of events or phenomena. Participants also commented on the value

of interacting with obscure documents and their surprise that these sources were available.

Although researchers appreciated available materials and, at times, found them overwhelming, they often commented that the sources were related to a rather limited range of interests and national cultures. Participant 1/1 noted that material related to an ethnic community in America was available and was not for the community in Australia. As the study was about Australia, the American material was marginally relevant. Participant 3/1 found that indigenous peoples' history was not well represented because there was not enough funding to digitize relevant sources and participant 2/1 stressed that material she used was not available because it was not of national significance. The participants also discussed the politics of representing knowledge on the Internet. Participant 14/1 commented that the wealth of information on the Internet was restricted to some nations, but there was a "poverty of knowledge about many areas of the globe":

I think that the use of the Internet is very much conditioned by certain kind of politics which is politics of access to knowledge and the politics of the provision of knowledge. [...] If I want to look up anything about American history, I can find it out very easily on the Net. And I think that encourages more knowledge about America. But ... if I want to go back and I want to find out how the colony of Liberia was established and how Sierra Leone developed and freed slaves, etc., I'm much better off going back to books.

C. Accessibility

Easy access to available materials from any location is another appreciated aspect of interactions with e-texts. As participant 3/1 said, "to have access to those at home, any time of the day or night, is just magic." Participant 9/1 commented,

What promotes use of electronic texts are convenience and speed. I very rarely go to the library these days, which I think is quite funny because when I was an undergraduate and postgraduate, I almost lived there. But now you can do everything from here (i.e. office).

Online access was particularly valuable in viewing remote collections. Participant 4/1 talked about the importance of online access to Australian materials, which are rarely reprinted because of the small audience. Distance made it difficult for researchers to access these materials within the country, not to mention researchers overseas who work on Australian topics.

Free access to sources was seen as advantage, but was not expected. However, some researchers commented on frustrating and unnecessary limitations to access. Participant 7/1 found it particularly frustrating that,

while searching for a full-text copy of a document on a library network, various databases offered the same bibliographic details rather than the full text, without an initial indication of what was not available, and therefore, the searcher felt like going around in circles. Participant 2/1 found that the request for payment in some archives was limiting access unfairly, especially when they with were public documents, funded by “public money.”

D. Information Overload

The wealth of information promotes the use of e-texts, but it is also an obstacle to an effective use. The opinion that “one of the problems now with doing research, you know, the idea of being really on top of the field, it’s not even in theory possible because there is so much material splurting out from every possible place” (participant 9/1). This view was shared by some researchers. Participant 14/1 noted that an expectation that researchers would know about constantly increasing literature in a field might impede creativity, especially for younger researchers.

One approach to dealing with information overload may be some form of specialized assistance. Participant 7/1 worked on an interdisciplinary project that could be informed by a vast range of materials and the researcher needed help from highly specialized reference librarians who could recommend relevant material. The participant also needed a more efficient way of making selections from retrieved sources: “And it’s, again, if there could be an intervening index between these things somehow. So it’s an irony, isn’t it? On one hand we look to the Net for this incredible extension and, on the other level, all I want is an index” (participant 7/1). Although the researcher had to deal with the ‘flood of stuff from everywhere’, this academic distrusted the stability of the Internet and feared that currently available materials could easily disappear.

E. Presentation of E-Texts

The way in which e-texts are presented within a collection or a database influences interactions by enabling some and limiting other possibilities of discovery and use. Organization of e-texts is one of the first features researchers note when entering an online collection. They appreciated a collection where relevant texts can be found easily, without “masses of searching” (participant 1/1). Flexible ways of searching were deemed useful. Participant 14/1 liked an ability to search by keywords, subject, and author, and participant 3/1 greatly appreciated that images were searchable by caption, owner, date, and location. The ability to save searches online for an

extended period of time was also mentioned as a useful feature. Full-text searching of a large document or a corpus was again useful, as well as provision for searching and moving through audio files.

Browsing and an ability to see a broader context of the text was valuable if it could be combined with different access points. Texts grouped in very broad categories, however, were not helpful in retrieval. Provision of browsing periodicals by year allowed the same type of browsing as in a library, but because it did not provide the unique functionality enabled by the electronic medium, a replication of physical arrangements was not perceived to be effective. Participant 6/1 talked about the value of browsing in physical collections and gave an example in which discovery was enabled by browsing a bound volume of different pamphlets, which contextualizes materials. This researcher compared electronic browsing with online shopping because in neither case was it possible to find things in an enjoyable way:

It's a bit like shopping. If I know exactly what I want to buy, I can buy it on the computer. If I want to go out shopping, I like to browse around the shops and that's part of the enjoyment because I never know what I'm going to see that I like. So, I regard libraries in much the same sort of way. (participant 6/1)

Online collections present their materials in many different ways and some participants found that the general lack of standards was problematic. In some instances, the same collection would use several retrieval systems, analog and electronic, that are not integrated. Participant 2/2 discussed research in an archive that had multiple retrieval systems, where the researcher needed lateral thinking and a background knowledge in digital editing, in addition to archivists' assistance, to use the collection effectively.

Use of technical and library jargon did not mean much to the researchers. Terms that seem simple and straightforward to information professionals had ambiguous meanings to the participants. Terms like "Boolean search" and "keyword search" do not come naturally even to scholars who are immersed in the electronic environment. Names of file formats and some technical terms such as "high resolution" were difficult to remember or confusing.

F. Technical Aspects

Reliable institutional networks and a good computer were identified as important to facilitate access to resources. Participants mostly felt that their networks and equipment were adequate. Participant 8/1 talked about some bottlenecks in resources, such as a limited number of printers, but he was

satisfied overall because the technological infrastructure had improved considerably over the years. Some participants noted problems caused by different platforms used by departments in the same institution. Some problems were also created by the mixed use of Macs and PCs within the same university. In addition, technical help was not readily available for specific problems such as display of images and layout of printed pages.

Constant changes in hardware and software and differences between platforms made the researchers feel unsure whether they were aware of what was possible. Some participants referred to the inability to search pdf files and one participant (2/1) was frustrated about working with e-texts in oral form and said, "What would come up in your player . . . is just the title of the file. I don't think it has anything else indexed into it. There could, potentially, but my player doesn't show me that." The researcher could not be sure whether the index was available, it was just that her player did not show it.

Design limitations affected the way scholars worked. Screen design made the work tiring after a while. Most researchers found it difficult to read from the screen, and participant 14/1, who was able to read from the screen, did not like that he had to keep clicking the mouse to be able to move from one page to the next. Participant 3/1 talked about difficulties in working with images of maps and moving around the document:

to get the handwriting, involves zooming in to quite a close level. And then trying to work out where you are on the map. It's a very cumbersome process . . . But digitisation and the scale is fantastic. But the process, then, of moving around a very large-scale document, which is what these maps are, in hard copy, it's quite cumbersome and awkward and difficult.

Certain formats seemed to be suited for particular tasks. The participants liked pdf because it looked like print and it was easy to print and cite, but formats such as html were preferred for searching.

Some participants talked about desirable software and services. Participant 16/1 could explore electronic poetry only by watching sections repeatedly because it was very difficult to isolate and analyze parts of the work. A good voice-recognition program was needed, but researchers who talked about that were not able to find adequate software. A technical solution for organizing large personal digital libraries was sorely missed by participant 2/1, and others would have benefited from having an easier way of managing their own e-texts. For example, participant 13/1 had to be careful to establish a system for each project, whereas participant 10/1 maintained very big files to achieve clear organization. Finally, there was a need for software for organizing and managing collaborative work across

distances and providing an efficient way of managing the team's digital output.

G. Skills for Working with E-Texts

The main areas of knowledge and skills recognized by the participants were identifying and finding databases, searching efficiently, assessing the accuracy and authenticity of retrieved sources, and using *EndNote*. The participants indicated that other minor aspects of use needed clarification too. None of the participants said that they had been systematically trained in using e-texts and other electronic sources. Some participants referred to a number of available workshops and training sessions. Even participants who attended these sessions or felt confident about their skills thought that there were a number of areas where training was needed. They indicated a need for an overview of different aspects of retrieval and use of e-texts.

Complex skills in working with mixed or multimedia were acquired either because researchers learned them on their own or because they happened to have previous education in dealing with electronic media. According to participant 2/2, good combinations of skills happened accidentally rather than being fostered by formal training. Participant 15/1 explored different ways of working with electronic media and wanted to see a new generation being formally prepared for new types of intellectual and artistic work:

This is something that I think we can do in an educational context because we can start teaching new media writers, artists, theorists etc., a kind of critical media literacy that engages them in such a way that they learn to improve various stages of development so that they can become, I don't know, better performers, you might say, better performers of writing.

In their discussion of aspects in the electronic environment that aid interactions with e-texts, participants recognized the availability of a range of sources, different representations of the same text (e.g., image and transcription), access to e-texts at any time anywhere, speed, flexible searching and browsing, as well as reliable networks and equipment, as helpful.

VII. Implications for Academic Libraries

Research libraries for years have balanced their role as a campus digital leader with being a book custodian and a patron of traditional scholarship.

Considering the importance of traditional collections for research in the humanities, library support of humanists can be seen as an exemplar of how libraries have to negotiate constantly changing and often opposing demands. By the same token, developments in the humanities research suggest future directions for academic libraries.

Trends indicate that traditional divisions on which information provision had been based are becoming increasingly irrelevant and that libraries will have to continue to work on bringing together previously separate knowledge spheres. The merging boundaries between academic and nonacademic sources will continue and research libraries will have to reconsider how they identify and evaluate information sources they add to their traditional and electronic collections. New communication and social technologies make it increasingly difficult to follow the distinction between information and communication, and therefore, librarians will have to think of innovative ways of bringing the two together within the library as well as aiding information discovery and use anywhere else where research takes place.

Curation of digital outputs and collections is imposing new demands on libraries as custodians. Scholars' current inclination to publish results of their research in digital forms, with blurred distinctions between creative and academic work, will continue and eventually pose significant demands on libraries to support, preserve, and make accessible new formats of academic publications. At the moment, libraries do not have ready answers to questions about preserving multimedia works, especially those of changeable nature.

Scholars' thematic collections and databases require different forms of support, which do not exist at most of today's libraries. Few scholars in the study mentioned a need for assistance from the library in developing their digital collections and databases, but it seems that they would benefit from advice how to work with different electronic formats, digitize materials, and organize and maintain their digital collections.

Some scholars' digital collections are unique and could be useful to other researchers. For example, an extensive textual database, developed by a biographer in the study, contains transcriptions of documents, interviews, and various recordings that need to be preserved and maintained beyond the span of the particular project. Libraries and archives need to develop practices and policies to curate and preserve researchers' collections. They also have to deal with ethical issues involved in handling and making accessible data from research projects, such as the researcher's commitment to the privacy of study participants. Incentives for researchers to give their digital collections to libraries are necessary. Long-term benefits of supporting researchers'

collections would be significant for libraries, as well as for scholars as producers and future users of these collections.

Discussions are needed about skills and knowledge in a range of areas where self-directed learning was the most common, although not the most efficient. It is important that university researchers, administrators, and librarians systematically address the development of digital skills. Highly specialized information professionals are needed to work with researchers on selecting and even developing relevant digital tools. In most cases, multidisciplinary teams, including IT staff, are necessary for sophisticated technological applications in research. In such instances, information professionals are in the best position to take on the role of “translator,” enabling interdisciplinary communication, particularly between technical staff and humanists.

Because most scholars visit the library less often than in the past, online information services are a promising area for future development. Considering the effectiveness of communication and social technologies, in addition to the increasing reliance on computers and multimedia, library research services would benefit from exploring nonverbal forms of support and collaborative arrangements within the institution and across multiple libraries.

Many researchers look to their university library for advice and guidance when it comes to digital matters, even when they do not welcome digital changes. The digital age has been often compared with the Middle Ages—from “a return to the Dark Ages” and “the potential disappearance of a thousand years of intellectual achievement” (Edmond and Schreibman, 2010, p. 1) to digital refashioning of scriptoria with their intensive scholarly and artistic work on manuscripts. However, in various versions of the Middle Ages metaphor, one key detail is missing—Librarian-Scholar. It is time to refashion the role, which academics in the humanities need and respect the most—the role of a partner on research teams and in intellectual dialogues—the Librarian-iScholar.

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