**"Songs of Innocence and of Experience":**
**Amateur Users and Digital Texts**
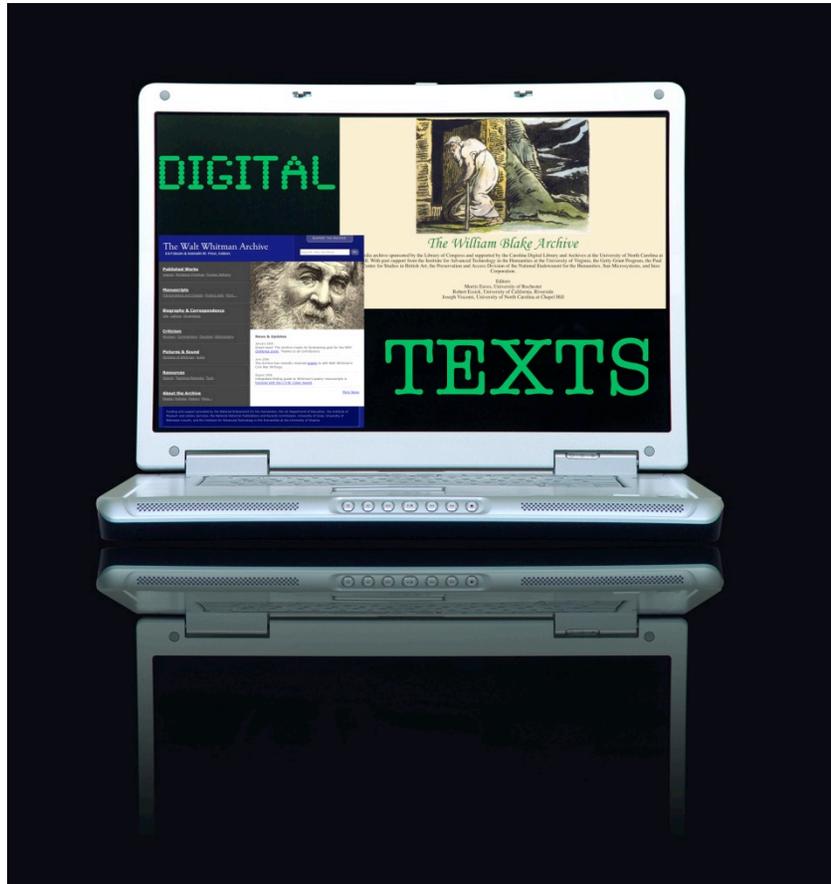


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**ABSTRACT**

Digital texts promise to allow learning beyond that possible with traditional resources. Purpose-built digital texts are crafted for specific research purposes, with developer-users and devoted academics comprising their primary, "scholar" audience. A secondary, "amateur" audience of learners with less digital text experience also relies on theses purpose-built resources. Does the promise of new learning from digital texts extend beyond scholars to amateurs, or does the design of purpose-built digital texts, by focusing on more experienced users with direct lines of communication to digital text developers, prevent this extension of benefits? This study gauged one subgroup of amateur users' perceptions of the value of digital texts in terms of answering self-generated research queries. The participants, graduate students from the University of Michigan's information master's program, worked with a digital text and completed a survey assessing their experience of digital text features and perception of their learning success. An analysis of the survey data produces an introductory understanding of amateur users' perceptions of their digital text use, their design needs, and their success or failure at learning through digital texts. The narrative responses suggest that while the idea of new learning from digital texts is foreign to the amateur audience, their assessment of digital text features was not particularly marked by their amateur status. This result suggests that designing purpose-built digital texts to serve both digital text scholars as well as some amateur subgroups is a reasonable task.

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# Chapter One: An Introduction to Digital Texts

## 1.1 The Ubiquity of Online Text

Increasingly, text is going digital. Electronic texts range from simple transcriptions of written material to progressively complex digital transformations that afford new ways of exploring both the original content and the materiality of a text. Digital humanists are using computers and the Internet to innovate better ways of delivering learning resources and conducting research.

In the academic world, online text currently falls into two categories. Optical Character Recognition (OCR) renders digital images (scans) of text machine-readable. OCR allows a database such as JSTOR to display the image of text taken from a physical resource, while using the text's component words for purposes such as searching and categorizing. Marked-up writing, the second category of online text, is usually displayed as actual text rather than as an image of text; additional information (metadata) is attached to the original body of writing. Metadata can be hidden from the reader, as when all adjectives in a text are marked so that a search for "adjective" produces occurrences of the desired part of speech. Metadata can also be visibly included with the text, as when the text comes from an object with interesting materiality (e.g. ink blots) that should be noted by a reader. The Text Encoding Initiative (TEI) maintains standards for representing text in digital form[1].

Marked-up text projects fall into two categories: "general purpose" and "purpose-built" projects. Projects in both categories provide a range of content from primary materials to research resources such as bibliographies to multimedia learning tools; these sites are often structured to allow searching, browsing, and analysis of the content (e.g. with SGML or TEI; Palmer, 2004). **Rarely do these two categories of digital texts overlap in original purpose or design, however.** General purpose sites support popular or widely varied use, providing access to cultural materials much as public museums do; purpose-built sites focus on scholarly use by learners in a very specific knowledge domain. While various demands and opportunities may shift purpose-built sites beyond their originally intended audience, their origin as highly specific research resources for a limited set of users mark purpose-built projects.

General purpose sites typically offer large collections of materials already gathered in physical archives or museums, and the thematic background and presentation of content on such sites are often simply those suggested by an existing, thematically heterogeneous collection. General purpose sites contain artifacts that can be used for scholarly research, but the manner of presentation is geared toward an audience with little experience or long-term investment in the content area (Conway, 2009, p. 1). One example of such a general purpose site is the Library of Congress' *American Memory*[2] project, which collects the Library's large collection of digitized images relevant to American history into a single web resource.

In contrast to the wide audience and less-specific purpose of general purpose sites, purpose-built projects are "thematically focused collection[s]" of marked-up images and text "tailored to a specific study" (Conway, 2009, p. 1). Such projects are often built both by and for the same

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1   Text Encoding Initiative. *TEI Guidelines* (http://www.tei-c.org/Guidelines).
2   The Library of Congress. *American Memory* (http://memory.loc.gov/ammem/index.html).

group of scholars; where scholars once needed to track down physical copies of all their research materials, purpose-built sites now allow research and learning about a topic to center around a single electronic resource. Purpose-built digital texts are the subject of this study, and these projects will be discussed in more detail below.
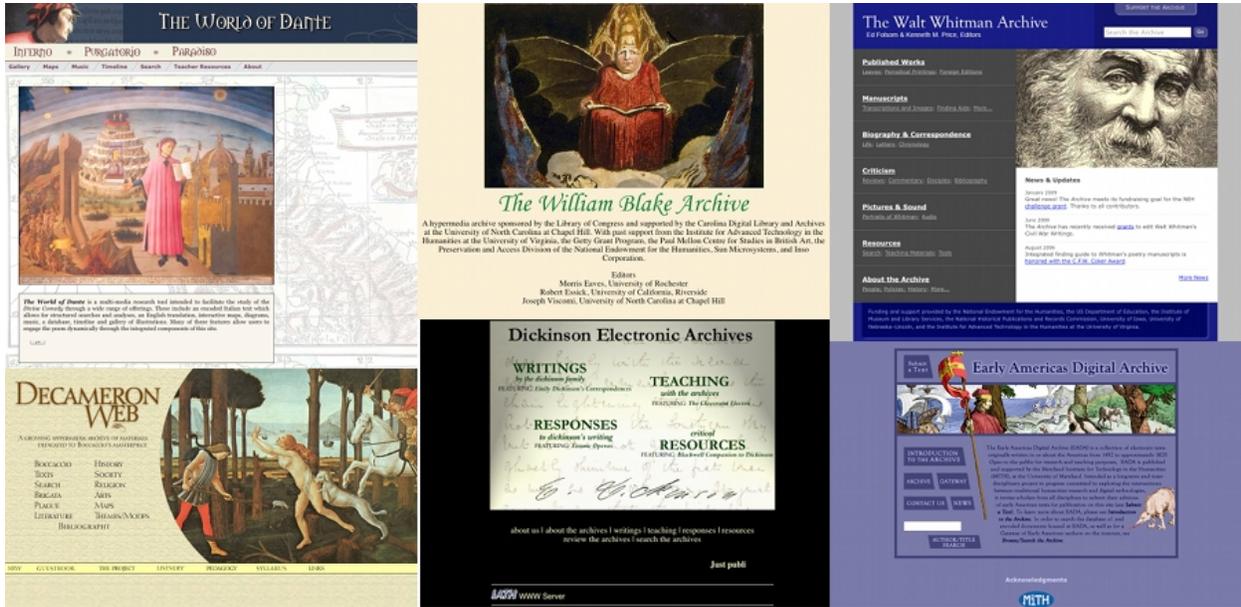


*Figure 1. Clockwise from top-left, screenshots of the entry pages of The World of Dante, The William Blake Archive, The Walt Whitman Archive, the Early Americas Digital Archive, the Dickinson Electronic Archives, and Decameron Web.*

Several terms for similar uses of marked-up digital text, both general purpose and purpose-built, are currently afloat in the digital humanities world: online or digital editions, texts, projects, databases, archives, and thematic research collections[3]. These projects can include one or many marked-up texts and accompanying tools, or even be centered on images and their textual metadata. For the purpose of this paper, the phrase "digital text" will refer specifically to purpose-built digital texts and purpose-built digital archives. The choice of terminology points both to the future and the foundation of digital texts. These projects' *digital* foundation is their most obvious differentiation from traditional research aids; it is the technology of computers and the Internet that allows such intense streamlining of scholarly practices, the offloading of traditional research activities through computer automation, and perhaps even the discovery of new types of knowledge difficult to acquire through traditional research methods. Additionally, the artifacts presented by digital texts all rely on a *text*ual foundation (whether through their textual content or metadata), and hyper*text* makes these projects possible.

### 1.2 Defining the Purpose-Built Digital Text

Both Conway (2009) and Palmer (2004) speak of digital collections as thematic: "digital aggregations of... sources and related materials that support research on a theme... allowing for

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3   Price, K. M. *Edition, Project, Database, Archive, Thematic Research Collection: What's in a Name?* (www.whitmanarchive.org/about/articles/anc.00346.html).

*coherent* aggregation of content" (p. 1; emphasis in original, paragraphs 1 and 11). These themes can range beyond obvious connections, such as the texts and resources related to a single author's body of work (*The World of Dante*[4]) or a single work by an author (*Decameron Web*[5]), to materials elucidating an author's biography (the *Dickinson Electronic Archives*[6]) or a historical moment (*Early Americas Digital Archive*[7]). All digital texts gather primary and secondary sources to form an online headquarters for scholarly work on a given theme.

The grouping of research materials by theme allows digital texts to offer scholars a distinct advantage over physical and digital libraries, which often organize and separate materials by themes rendered artificial by their nominal importance to scholarly interpretation (e.g. alphabetization and overly broad subject headings). Such artificial organizations often mask rather than reveal connections among materials, since it is difficult for physical catalogues to allow as many access points to a piece of content as a digital tagging system can (Weinberger, 2007, as cited in Bertolucci, 2009, p. 38)[8]. Traditional library organization, by imposing artificial nearness on thematically different resources, can impede scholars from unmasking academically important relationships among resources (Palmer, 2004).

Most digital texts resemble the Institute for Advanced Technology in the Humanities' (IATH) well-known projects, which include *The Valley of the Shadow*[9], the *Walt Whitman Archive*[10], and the *William Blake Archive*[11]. These projects share certain basic attributes defined by former IATH director John Unsworth:

> electronic
> heterogeneous datatypes
> extensive but thematically coherent
> structured but open-ended
> designed to support research
> authored or multi-authored
> interdisciplinary
> collections of digital primary resources (2000b, slide 2)

IATH, "the most attractive model for digital humanities in the United States" (Katz, 2005, p. 111), is often praised as a nursery for digital texts, with projects recognized by the Modern

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4   Institute for Advanced Technology in the Humanities (IATH). *The World of Dante (*www.worldofdante.org).
5   Brown University Italian Studies Department Virtual Humanities Lab. *Decameron Web* (www.brown.edu/ Departments/Italian_Studies/dweb/index.php).
6   IATH. *Dickinson Electronic Archives* (www.emilydickinson.org).
7   Maryland Institute for Technology in the Humanities (MITH). *Early Americas Digital Archive* (http://mith2. umd.edu/eada).
8   On the other hand, digital cataloguing has problems as well. Bertolucci (2009) notes that while tagging can increase the momentary value of content, the implausibility of complete tagging means we cannot reach anywhere near a "maximum monetary value"; the *Blake Archive*'s unwieldy, yet still non-exhaustive image topic search list is a good example of this failing (34; http://www.blakearchive.org/blake/imagesearch.html).
9   Virginia Center for Digital History. *The Valley of the Shadow* (http://valley.lib.virginia.edu/).
10  University of Nebraska–Lincoln Center for Digital Research in the Humanities (UNL CDRH). *The Walt Whitman Archive* (http://whitmanarchive.org).
11  University of North Carolina at Chapel Hill Carolina Digital Library and Archives (UNC DLA). *The William Blake Archive* (http://www.blakearchive.org/blake/).

Language Association, the Andrew W. Mellon Foundation, and the National Humanities Center[12].

The William Blake and Walt Whitman archives are both purpose-built digital texts, but they are quite different from each other in their visual appearance, main research tools, and structure. The *Blake Archive* offers a hypermedia presentation of many of Blake's works (both visual and textual), with a somewhat antiquated, text-heavy interface as well as a powerful image comparison tool. In contrast to the *Blake Archive*, the *Whitman Archive* offers a cleaner interface, and the focus is on textual analysis via annotated written and photographic presentations of Whitman's manuscripts. The most significant difference between the two archives is their underlying structure; the *Whitman Archive* is built with EAD (Encoded Archival Description[13]), while the *Blake Archive* uses the older, non-archive-specific XML (eXtensible Markup Language[14]) to encode its textual data[15]. EAD is built specifically for archival finding aids, and this focus results in a cleaner, more intuitively navigable digital archive.
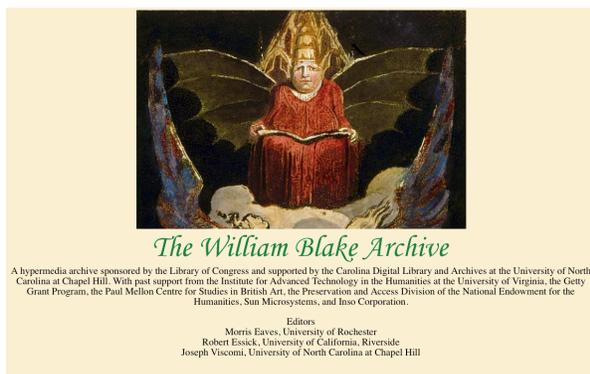


Figure 2. The William Blake Archive.
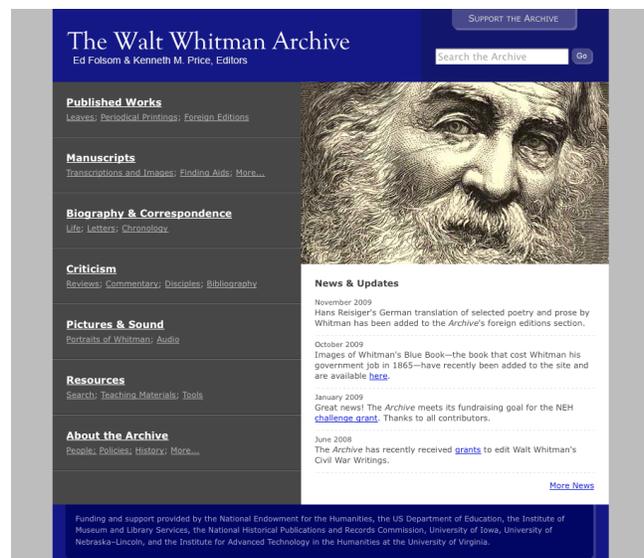
Figure 3. The Walt Whitman Archive.

A large literature of critical material and a history of serious use by a scholarly audience mark both the Blake and Whitman archives. The *Blake Archive* is frequently pointed to as an exemplary project; the site received the Modern Language Association's 2001-2002 award for a Distinguished Scholarly Edition[16], has already achieved considerable longevity (as digital projects go; it has been online since 1996), and is the subject of numerous articles and discussions[17]. Some of these writings, as with John Unsworth's (2000) description of the choices

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12 IATH. *IATH: Mission* (http://www.iath.virginia.edu/mission.html).

13 Library of Congress. *Encoded Archival Description Version 2002* (http://www.loc.gov/ead).

14 World Wide Web Consortium (W3C). *Extensible Markup Language (XML)* (http://www.w3.org/XML).

15 UNL CDHR. *The Walt Whitman Archive: About the Archive: Technical Summary* (http://www.whitmanarchive. org/about/technical_summary.html); UNC DLA. *The William Blake Archive: Technical Summary* (http:// www.blakearchive.org/blake/public/about/tech/index.html).

16 Modern Language Association (MLA). *MLA Prize for a Distinguished Scholarly Edition Winners*. (www.mla.org/pastwinners_distsch).

17 UNC DLA. *The William Blake Archive: Articles About the Archive* (www.blakearchive.org/blake/ public/about/articles/index.html).

governing the creation of the site's interface, afford a rare, detailed look into the decision-making process behind digital text development. The *Whitman Archive*, another IATH project around since the mid-'90s, is also the subject of much writing[18]. Because of their similar excellence but differing topics and presentation, these two archives will serve as the study's model digital texts.

**1.3 The Benefits of Digital Texts in Contrast to Traditional Texts**
A wealth of theory on the benefits of digital texts over traditional (non-digital) resources exists, based on everything from wishful thinking to intended use to casual observation. Digital humanists generally agree that digital texts offer tools unavailable to users of physical texts and offline libraries, allowing scholars to "visualize and hear cultural phenomena in ways that even the most advanced analogue printing does not permit":

> Digital finding aids make it much easier to identify relevant source and secondary material. Digital word-searching techniques not only facilitate the identification of specific information, but enable the researcher to compare and make connections across long periods of time and vast bodies of material... the scholar can now manipulate information ranging from text to image to sound in ways that recreate old worlds and suggest worlds that never "really" existed. We are beginning to be able to search images and sounds in ways that were impossible before. We can specify links between image and text. We can doubtless do many things that we have not yet discovered. (Katz, 2005, p. 112)

Digital texts also solve issues arising from the diverse physical locations of related materials.

Digital texts offload or streamline many routine scholarly tasks (e.g. searching, creating concordances, and gaining access to a body of resources spread throughout different physical locations), but their value lies not only in adding research tools to texts, but in the possibility of "transcend[ing] originals" (Conway, 2000, p. 20). Scholars in diverse fields agree that digital texts can offer more than just the digital offloading of traditional scholarly activities:

- From the archival field, Conway (2000) described "product[s] that can be used for purposes that are impossible to achieve with the original sources" (p. 20).

- From the field of museum studies, Cameron (2007) writes that digital objects are beginning to be perceived as more than just surrogates for physical sources: "the digital historical object as surrogate is just one of its many roles, and it embodies its own material and aesthetic properties similar and dissimilar to physical collections" (pp. 64-65).

- From the information studies and computer science field, Unsworth (2009) concludes "a digital surrogate [can] be superior to its source... when software provides tools that allow something more or different than physical examination."

- From the humanities field, English and art history professor W. J. T. Mitchell (2003) also looks at digital object "copies" as possibly superior to "originals":

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18  UNL CDRH. *The Walt Whitman Archive: About the Archive: Articles and Interviews*. (www.whitmanarchive.org/about/articles/index.html).

Now we have to say that the copy has, if anything, even *more* aura than the original... the copy has every chance of being an improvement or enhancement of whatever counts as the original. The digital reproduction of sounds and visual images, for instance, need not involve any erosion of vividness or lifelikeness, but can actually improve on its original material... the digital copy can come closer to looking and sounding like the original than the original itself. (pp. 487-488)

Clearly, the digital state offers new possibilities for research and learning; some digital text features allow intellectual connections to be made across unprecedented distances and types of resources.

Some digital humanists use digital text projects to improve upon their understanding of the physicality of original sources and materials. For example, *Blake Archive* editor Joseph Viscomi (2002) reported that the *Archive* is able "to produce images that are more accurate in color, detail, and scale than commercially printed reproductions, and texts more faithful to the author's originals than existing printed editions" (as cited in Palmer, 2004). *Whitman Archive* editor Kenneth M. Price identified the new possibilities for understanding materiality offered by digital texts as an important reason for beginning the *Archive*: "We're doing this in part because [Whitman's] work defies the constraints of the book. Whitman's work was always being revised, was always in flux, and fixed forms of print do not adequately capture his incessant revisions"[19]. Digital imaging of materials can provide researchers with better sources than those found in the best-printed book; high-resolution files lets a scholar get as close to the "fine print" as if he were in the presence of the original, while costing the viewer little or nothing. Possibilities such as "imaging that uses special lighting to draw out details obscured by age, use, and environmental damage" and "digital imaging products that incorporate searchable full text (marked up or raw)" are also being incorporated into digital text projects (Conway, 2000, pp. 20-21).

Digital texts promise to offer even more than improved understanding of texts and images' original materiality, adding entirely new abilities to the scholarly toolbox ("Summit", 2006, p. 4). Price (2005) sees the *Whitman Archive*'s main focus as going beyond the digitization of Whitman's works to offer "an enabling interpretive tool that advances how analysis itself is done". Phenomena such as tagging, near-limitless data storage, descriptive metadata, and online collaboration imply a promise that digital texts can help scholars attain new knowledge not accessible through non-digital tools; the *Whitman Archive*'s EAD-improved text and TokenX textual analysis tool and the *Blake Archive*'s tagged image search (allowing users to find images by combining choices from a long list of subject tags) and image comparison feature are all tools that allow scholarly activities not easily performed with physical resources. As the value of digital texts for learning becomes more recognized, funds will flow more freely and digital text creators will become more respected, a situation conducive to the creation of even better digital texts (Katz, 2005, pp. 113-114).

**1.4 Digital Text Issues**
Even while acknowledging the promising future of digital texts, digital humanists are keenly aware of the weaknesses in the existing digital text toolkit. Palmer (2004) identifies "common

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19 K. M. Price. *The Walt Whitman Archive: About the Archive: History*. (www.whitmanarchive.org/ about/history.html).

scholarly activities" that as yet have little or no support in digital texts, including "basic activities of annotating, comparing, referring, selecting, linking, and discovering that are continually carried out by scholars as part of the complex processes of reading, searching, and writing." Even more recently, Nguyen and Shilton (2008) reported on the usefulness of digital text tools, as measured by characteristics such as sustainability of the tool, accessibility to the intended scholarly audience, and clarity of use; their findings showed that these tools cover a wide range of efficacy from excellent to poor. For all the added use value they can offer, the features of many digital texts do not yet assist with the majority of basic scholarly needs.

The move from digital to physical brings with it widening use, perhaps raising questions about the extent of the knowledge that developers have of their audience. Where traditional research tools were created for a limited and knowledgeable group of learners, greater access has widened the availability of scholarly projects: "in the past the fate of the monumental scholarly edition was clear: it would land on library shelves and, with rare exceptions, be purchased only by the most serious and devoted specialists. Now a free scholarly edition can be accessed by people all over the world with vastly different backgrounds and training"[20]. As the Internet sees more widespread educational use, a broadening audience of learners outside academia will access digital texts.

Digital text developers, even more than creators of traditional research resources, need to be aware of the variety of potential users of their creations. Unsworth (1997) underlined the importance of evaluating the burgeoning world of digital texts:

> If we are advocating a change, or participating in one, we ought to be deeply concerned with evaluative questions. In the case of the transformation of the book... "Does hypermedia improve on the book?" And that is a question that ought (in principle) to be answerable, with some combination of empirical evidence and rational argument.

In the thirteen years since Unsworth wrote those lines, the rational arguments for digital improving on analog text that Unsworth mentions have certainly been made; however, our store of empirical evidence for the value of digital texts remains low.

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20 K. M. Price. *Electronic Scholarly Editions* (www.whitmanarchive.org/about/articles/anc.00267.html).

# Chapter Two: User Studies and Audience Needs

*Whether our users' inquiries are inspired by a love of imaginative art and writing, term papers, or scholarly research, no other resource can match the depth or range of access provided by the archiving, searching, and viewing options at our Web site. **But we have designed the site primarily with scholars in mind.***

—*The William Blake Archive*: Plan of the Archive
(emphasis added)

## 2.1 Two Types of Digital Text Users

When preparing to study digital text users, this study considered several user characteristics:

- **Intention**. While all websites create the same dichotomy of intended and non-intended users, this division is especially interesting in the case of digital texts. Digital texts are useful to a set of users potentially larger than a digital text's intended audience, yet design decisions not suited to their needs may hamper the research of this set of users.
- **Investment**. Digital texts are unusual for websites: their main audience consists largely of the user-developers of a given site, as well as users in frequent communication with the developers. Because of their professional dependence on one or more digital texts, this main audience is deeply invested in learning to manipulate these resources; users outside this main audience do not share this level of investment and may correspondingly be less skilled at using digital texts for research.
- **Experience**. Users are variously experienced with digital texts. Some users are well-versed in digital text use; others users hold a varied range of knowledge on a digital text's subject and literary studies in general, but are similar in their unfamiliarity with the features and use of digital texts.

Studies of general hypertext use (e.g. Altun, 2000), and more recently research on digital educational resources (e.g. Koohang, 2004), often consider the variable of technological experience when evaluating digital resource use. This study will consider two groups of digital texts users, *divided by their different levels of experience with digital texts*: a professionally invested, digital-text-design-targeted "**scholar**" audience and a less invested, non-targeted "**amateur**" audience.

**2.1.1 Scholar Users.** A purpose-built digital text's intended use is supporting in-depth scholarship on its focus subject. The first of this study's two digital text user groups, *scholar users*, constitutes the tight circle of individuals whose academic life is closely linked to the use and success of a digital text; this group includes both the digital text's developers and academicians at the doctoral level or beyond conducting research through the digital text, generally with the developer's knowledge and assistance. For example, the *Whitman Archive*'s scholar audience currently consists of 22 scholars, ranging from the *Archive's* co-directors Kenneth M. Price and Ed Folsom to *Archive* editorial assistants to faculty, librarians, and graduate students at the site's home of the University of Nebraska whose research relies on the *Archive*[21]; the site, which began in the 1990s, lists about 80 past scholar users of the *Archive* as

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21 UNL CDRH. The Walt Whitman Archive: About the Archive: Project Staff (www.whitmanarchive.org/about/staff.html).

well. The *Blake Archive* lists a past and present staff of over 50 user-developers, ranging from the project's editors to bibliographers and research assistants[22].

As many developers create digital texts for their own research, the line between developers and users is a murky one. For example, the *Walt Whitman Archive* was originally conceived as a tool specifically for use by the dedicated Whitman scholars creating the *Archive*, not Whitman lovers at large; thus, Ed Folsom and Kenneth M. Price, the *Archive*'s editors, are part of the *Archive*'s scholar audience[23]. With such a small target audience—developer-users and their equally invested academic colleagues—it has generally been considered efficient and effective for a digital text's creators to consult their own needs and preferences in the design of the project. However, founding designs on assumptions and the needs of one's immediate colleagues risks ignoring the needs of an audience extending beyond this scholar group.

**2.1.2 Amateur Users.** The *Blake Archive* "Plan of the Archive" hints at the existence of users beyond dedicated digital text scholars: a wider, "dispersed and various audience"[24]. Indeed, a second group of knowledge seekers accesses digital texts: *amateur users*. The term amateur should retain both its traditional connotation of intrinsic rather than extrinsic and professional motivation for a task, as well as the more modern usage of the term to denote inexperience. The amateur audience presents an interesting challenge to digital text developers; while this audience has less investment and experience with digital texts, their use of these resources outside of the area of intended use suggests a high level of intellectual self-motivation. An amateur user delves into a digital text in ways unintended by its creators; knowledge-seeking may be equally sincere and research queries may be just as complicated, but amateur use was not the reason a digital text was created.

The *Blake Archive* acknowledges its wide audience while affirming its focus on scholar users:
> Whether our users' inquiries are inspired by a love of imaginative art and writing, term papers, or scholarly research, no other resource can match the depth or range of access provided by the archiving, searching, and viewing options at our Web site. *But we have designed the site primarily with scholars in mind*. (emphasis added) [25]

The wide range of users outside the scholar users the *Blake* developers held in mind comprises the amateur audience of a digital text; for example, the Whitman and Blake archives' amateur audiences include serious scholars of Whitman or Blake who are not attached or in communication with the archives' developers, or who have just begun to use the archives in unexpected ways; graduate students visiting the archives for a short time to complete a project or paper on Whitman or Blake; and casual visitors from anywhere in cyberspace hoping to learn about Whitman or Blake. Unlike the scholar audience, these groups' investment with these digital texts is less likely to reach to the extent of doctoral work or beyond or a hand in the digital text's development, though such use is possible. Experience with traditional literary study should not offer an individual a great advantage when beginning to use a digital text, so even the most

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22 UNC DLA. *The William Blake Archive: Credits* (www.blakearchive.org/blake/credits.html).
23 UNL CDRH. *The Walt Whitman Archive: About the Archive: History* (www.whitmanarchive.org/about/history.html).
24 UNC DLA. *The William Blake Archive: Plan of the Archive* (www.blakearchive.org/blake/public/about/plan/index.html).
25 UNC DLA. *The William Blake Archive: Plan of the Archive* (www.blakearchive.org/blake/public/about/plan/index.html).

devoted scholars outside the digital text use world are on an equal footing with non-scholars coming to digital texts for the first time.

An audience composed of all digital text users except scholars should be include a broad range of individuals; to explore such a large audience, it is useful to define the dichotomy of expertise levels that differentiates scholars and amateurs. Hoffman, Shadbolt, Burton, and Klein's (1995) definition of experts can be applied to the digital text scholar audience:

> One who is... highly regarded by peers... whose performance [in using a digital text] shows consummate skill and economy of effort, and who can deal effectively with rare or "tough" cases [or research queries]... has special skills or knowledge derived from extensive experience with subdomains[, specifically digital text use]. (p. 132)

The amateur digital text audience can be defined by the opposite characteristics; amateur digital text users are not recognized by their peers as experts, ineffective in navigating digital texts, unable to efficaciously answer complex research queries through a digital text, and generally inexperienced in digital text use.

Amateur users differ from scholar users chiefly in the ways they use digital texts. While the amateur audience designation spans many types of digital text use, one example of an amateur user would be a master's student in a graduate information program. Some of the student's instructors might be scholar users (even developer-users) of specific digital texts, and the student might receive some exposure to digital text and digital humanities concepts during the course of his studies; the student's use of digital texts is dictated by class assignments and amateur academic interest, however, not a professional research focus and intellectual give-and-take with the digital texts' developers, which places him in the amateur audience of a digital text.

When working with such a large audience, it is also useful to think about what subgroups of amateur users are largest, and which of these subgroups can provide design insights that might realistically be instituted. The amateur audience of digital text users is potentially large, though more difficult to count than the scholar audience. Scholar users are necessarily limited in number; only so many people can work on the *Whitman Archive*'s development, and only so many doctoral students and faculty dedicate their lives to the study of Whitman or move to the University of Nebraska to interact directly with the *Archive*'s development. The audience of amateur users can grow more quickly; for example, this group can include any undergraduate or master's student exposed to Blake during a single course and wishing to know more, any non-student individual wishing to better understand "The Tyger", and any art or history student wanting to examine images of old etching techniques. For the purpose of this study, we will focus on a subgroup of amateur users composed of self-motivated, graduate-level learners with some information technology experience. This subgroup is potentially large; because its members have a high degree of motivation to use digital texts effectively, their design needs might not conflict too heavily with the design needs of the more experience scholar users.

As an amateur audience sits outside the circle of communication of a digital text's scholar users, an amateur audience's needs and goals often are unaccounted when design is discussed. Given the specific knowledge needed to work on such resources, digital text creators rely on specific, self-referential user personas when imagining their needs and the needs of their scholar-audience

colleagues. From the body of work produced by digital text designers about their creations[26], it is clear that digital text designers are mindful of the needs of their scholar users; it is largely the "scholars who 'own and operate' purpose-built digital collections... [who] tend to write about both their digitization processes and the intellectual premises behind them" (Conway, 2009, p. 1). Most of the literature written about the features of these digital texts is limited to these user-developer-authored articles.

## 2.2 The Lack of Digital Humanities User Studies

The digital humanities world has seen only a few truly pertinent digital resource user studies, such as the LAIRAH (Log Analysis of Internet Resources in the Arts and Humanities) Project, which surveyed the usage patterns of digital humanities resources and worked directly with users to determine "factors that may predispose a digital resource to become used or neglected in the long-term" (Warwick, Terras, Huntington, & Pappa, 2007). Most of what research exists is usability work geared at improving individual projects or features (e.g. Don et. al.'s work with the textual analysis tool FeatureLens, 2007) and is not extendable to the design of digital texts as a genre: "we have little empirical data about how these resources are being used... the general lack of knowledge about level and quality of use... has been identified as a pressing concern" (Harley et al., 2006, section 3-9, and 2-1). Most of the user studies of digital resources that do exist have been conducted for or by groups outside of the digital humanities field, such as teachers and students within the formal education system (e.g. Moursund & Bielefeldt, 1999 and Crowther, Keller, & Waddoups, 2004), digital libraries and their patrons (e.g. Hill et al., 1997 and Dervin, Connway, & Prabha, 2004), and scholarly workers using academic libraries as "information environments" (e.g. Brockman, Neumann, Palmer, & Tidline, 2001; Friedlander, 2002; and Troll Covey, 2002). Even in those studies that might benefit digital text development, the multiple agendas at play in the interpretation of digital resource user studies, from institution administrators to resource developers, may baffle those digital text creators who try to sound out their entire potential audience as to how "an exceptionally diverse set of digital resources is actually used" (Harley et al., 2006, section 1-2).

A small amount of studies have worked with scholar users of digital texts (e.g. Sukovic, 2008), but even less research has been conducted on amateur use of these resources. The lack of empirical understanding of the potentially large digital text amateur audience indicates this group deserves study. The digital humanists' achievement of new types of knowledge via digital texts is dampened by a lack of empirical proof of who can gain by this new knowledge. Does the design of purpose-built digital texts allow users outside the circle of scholar users to also access the new knowledge gains offered by these resources? Or, are such benefits restricted to a scholar audience with a high degree of familiarity with what a digital text can offer? Answers to such questions could be revealed by careful study of amateur digital text users.

The amateur audience of digital texts has received even less study than the general audience of digital texts, and amateur audience needs and abilities are only vaguely defined. Several reports by major bodies have found that most digital cultural collections only informally model their intended audience and have made a call for the disciplined evaluation of digital text users. These

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26 UNL CDRH. *The Walt Whitman Archive: About the Archive: Articles* (www.whitmanarchive.org/ about/articles/index.html); UNC DLA. *The William Blake Archive: Articles About the Archive* (www.blakearchive.org/blake/public/about/articles/index.html).

reports include the Alice Grant Consulting Report in 2003, The National Initiative for a Networked Cultural Heritage [NINCH] "Guide to Good Practice in the Digital Representation and Management of Cultural Heritage Materials", and the Center for Studies in Higher Education "Online Educational Resources: Why Study Users?" meeting in 2005.

Juola (2006) also decried this lack of user studies, identifying a "mismatch of expectations between the expected needs of audience (market) for the tools and the community's actual needs" as a likely source of much unrealized potential with digital texts (p. 5). NINCH similarly found that digital texts are often erroneously designed around assumptions about user's needs based on "existing usage of analog resources" (2003). Such assumptions ignore the new possibilities presented by digital resources: "for instance, use of postcard collections has always been limited, but when made available in digital form their use rises dramatically; ease of access is the key" (NINCH, 2003). The discovery of such new uses for digitized materials underlines the need for direct user evaluation: "only by carrying out evaluation with our users can we find out how the digital resources we create are actually being used" (NINCH, 2003). The increasing ubiquity of the digital text is paralleled by the increasing importance of empirical evidence for the worth of these projects and for the needs of their users. Digital text developers need to formally gather feedback from amateur users, rather than ignoring them, developing user personas through thought experiments, or relying on informal models of their needs.

**2.3 Digital Texts and User Studies**
Unsworth (1997) argues that the benefits of hypertext (and other aspects of the digital humanities as well) need to be testable. To claim that digital texts are improvements over physical texts, digital humanists must be able to point to a theory that could potentially be disproven:

> When a theorist of hypertext does make claims of a factual nature (such as the claim that hypertext is an improvement over the state of text in printed form)... [he] has obliged himself or herself to support those claims with empirical evidence and rational argument... If we do think that we are "reinventing the text"... then we must have a theory to guide that research, and it must be possible for that theory to be proven wrong by the evidence. In short, if failure isn't a possibility, neither is discovery. (Unsworth, 1997)

That digital texts offer a plethora of tools not found with traditional resources is not being debated. Whether or not these tools are actually in frequent use and benefitting their users has not received enough attention; digital humanists must assess not the quality of the digital text as an idealized resource, but its value when accessed by real scholars on a daily basis. Being so closely tied to a digital texts' development, scholar users of a digital text can quickly voice any issues with the project they are using; amateur users cannot similarly voice their needs. Thus, evaluating the value of real use by amateur digital text users is of great importance.

Amateur audiences may form the majority of users for many digital texts, and the digital humanities world is ready for a formal evaluation of this group's needs and perceptions. If the use value offered by digital texts in contrast to traditional resources seems obvious, then producing empirical evidence of these benefits should pose no problem—and yet, as demonstrated above, very little in the way of scientifically conducted testing of digital texts has taken place.

**2.4 Assessing the Value of Digital Texts: Usability, Usefulness, and Use**

Digital humanists can remedy this lack of scientific proof of digital texts' value to users in three ways. First, digital humanists can test the structure of a digital text, examining the system that delivers resources to the user; this involves a *usability* approach that follows users in their functional interactions with a site's interface. Digital texts can potentially assist scholarly users with many tasks. The *Summit on Digital Tools for the Humanities* (2006) identified four areas where attendees believed technology could aid humanities work: "interpretation, exploration of resources, collaboration, and visualization of time, space, & uncertainty" (p. 5). John Unsworth (2000) provides a different list—"discovering, annotating, comparing, referring, sampling, illustrating, and representing"—as basic human activities simple or "primitive" enough to be easily transferable to humanities computing. These individual features and tools of a digital text can be tested by straightforward usability studies.

Second, digital humanists can identify the value of a digital text's content by looking at the *usefulness* of the content to the scholar. Such a study would test the relevance of a digital text to its proposed audience, measuring the relatedness of the material to a project's users research (Saracevic, 2007a, p. 1918). Saracevic (2007b) examined relevance studies that looked at user assessments of web pages, including comments on decision-making and measures of perceived usefulness and authority (p. 2127)

Third, digital humanists can identify the value of a digital text's content by looking at an audience's *use* of a digital text; such a study would look at user behavior, assessing what users are trying to do with a site and how they go about doing it. A measure of use is different from a measure of usefulness; where usefulness looks to the relevance of content to an audience, evaluating use requires looking at the efficacy of a digital text after its usefulness has been established or assumed (Park, 2000, p. 461).

This study will focus on the last of these value assessments, *use*. The least well-established benefit of digital texts is not the offloading of scholarly chores, but assistance to scholars in making new inferences and connections as suggested by their personal paths through material that is "both interactive and non-linear... a non-narrative experience for the user" (Katz, 2005, p. 113). Judging the worth of an entire digital text—that sum greater than the tools and resources it contains—is not as easy as quantifying the efficacy of individual features and can be accomplished with neither usability or relevance studies; instead, a digital text's worth should be judged by whether users are answering their research queries when using that resource. Figuring out the worth of the whole digital text, rather than its component features, requires probing scholars' perceptions of their digital text *use*.

# Chapter 3: Methodology

Digital humanists must ask whether amateur users perceive that digital texts help them answer their research queries, and find their answer in non-controlled user studies. NINCH identified "feedback from real users of digital collections and programs" as "crucial", furthermore suggesting that real use could not be adequately replicated by controlled situation with participants "solving tasks which evaluators have pre-defined" (2003). This study will therefore evaluate digital texts through use self-reports from amateur users, focusing on their perceptions of digital texts and associated learning rather than success at following a controlled research agenda.

**3.1 The Research Question**
Digital humanists need to develop a picture of how amateur users feel about digital texts when used on their own terms. Rather than charting amateur users' speeds at site navigation, digital humanists need to ask them how navigation speed affects their learning, whether it curtails their digital text use, and how much work they feel it is acceptable for a site to require of them to get where they want to go. Before attempting to quantify how a digital text might improve an amateur user's learning, digital humanists need a better sense of how amateur users experience learning via digital texts. Therefore, this study asked: **what are amateur users' perceptions of the value of digital texts in terms of answering research queries?**

In other words, this study attempted to evaluate whether amateur users perceive that they are able to satisfy the research queries they have in mind when accessing a digital text. To clarify the terminology used in the research question and the rest of the study:

- *Amateur users* of digital texts have received less attention than scholar users, do not have a ready channel of communication to a digital text's developers, and have a low level of time investment with any specific digital text. This study focused on one subgroup of the digital text amateur audience: information studies graduate students, a uniquely self-motivated and Internet-savvy group.
- *Perceptions* are the self-reports of these amateur users as to their experiences with using a digital text: their subjective take on their own needs, frustrations, and use of a digital text
- *Value* in a digital text is defined as the self-reported success of a user in answering his research queries
- *Digital text*s, in this study, are purpose-built projects centered around electronically accessible marked-up text and images
- *Research queries*[27] encompass both specific academic inquiries and broader topical knowledge-seeking that a user attempts to fulfill through the information presented in a digital text

The research literature leaves it unclear whether the design of purpose-built digital texts allows individuals outside the circle of scholar users to also access the new knowledge gains offered by these resources. The level of experience with specific digital texts is different between scholar

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27 The wording used in the web survey was "learning goals"; this was later changed to "research queries". *Queries* denotes the *users'* research questions, while *questions* denotes the *study*'s overarching research questions.

and amateur users, and lack of experience and time investment may be an obstacle for amateur users trying to achieve the same types of new knowledge that scholar users can get out of digital texts. Thus, this study pays special attention to the participants' different levels of experience with digital texts, comparing the responses of the more and less experienced to evaluate whether experience with digital texts is a determinant of success in answering research queries. Aiming to make recommendations for digital texts that would better serve an amateur audience, the study also looked for attitudes toward specific digital text features and abilities that seemed unique to the amateur audience of digital texts.

## 3.2 Areas of Focus

The study gathered data about amateur audience digital text use in three areas: general use, research queries, and the interplay between experience with digital texts and success at achieving new knowledge. Questions pertaining to digital text usefulness (i.e. relevance of the digital text to the amateur audience) and usability (e.g. efficacy of individual features, site structure) were avoided as outside this study's scope.

**3.2.1 Research Question #1: General use.** What are the characteristics of the amateur audience's digital text use? Looking at amateur audience user behavior, the study gathered data as to *what* users are trying to do with digital texts and *how* they go about doing it.

**3.2.2 Research Question #2: User research queries.** The study further focused on digital text use related to users' answering of research queries:
- First, the survey assessed whether amateur users are answering their research queries, and if so, how they are using digital texts to do so.
- Second, the study looked at the perceptions amateur users hold as to the impact of digital texts on their research queries. Do amateur users feel their research queries are answered by digital texts? What is the perceived value of digital texts to amateur users?
- Third, the survey gathered data on how the building blocks of digital texts—site tools (e.g. image comparison) and features (e.g. navigation speed)—affect amateur users' success with research queries.

**3.2.3 Research Question #3: Experience and new knowledge.** The new knowledge possible through digital texts (i.e. knowledge not obtainable via traditional learning resources) was a third area of the study's inquiry. The survey attempted to identify *if* amateur users are making new inferences and connections via digital texts, and *what* these connections might be, as suggested by their personal paths through the material. A comparison of the achievement of this new knowledge between the amateur and scholar digital text audiences was also attempted. Does a user's level of experience with digital texts affect his success with answering research queries, perhaps by determining access to the digital-text-specific new knowledge?

## 3.3 The Research Setting

The study consisted of 35 individuals drawn from students in the University of Michigan School of Information master's (M.S.I.) program. From October through February, study participation was solicited by email to the M.S.I. student listserv, in-person and email announcements in several M.S.I. courses, and via the School of Information Twitter displays. The survey participation took place online, via a web survey tool that required visiting one or two online

digital texts. Participants also briefly met the researcher in person to receive a participation reward of ten dollars per person. Data was gathered during the University of Michigan fall term of 2009 and winter term of 2010.

Limiting the sample pool to current M.S.I. students provided users who both met the criteria of the amateur user audience and were knowledgeable enough about information concepts that the survey would not need to define any terminology at great length. The sample pool's graduate status implies that participants have a degree of intellectual curiosity and an interest in concepts of information studies such as the digital humanities, while their master's level means that their use of digital texts does not go beyond the amateur level. The School of Information offers many courses touching on digital texts and related concerns, from the introduction to electronic information sharing given all M.S.I. students in the foundation course SI 500 Information in Social Systems to digital humanities, digital library, and preservation courses (e.g. SI 516 Literary Research and Computers and SI 675 Digitization for Preservation), two such courses that met during the study.

**3.4 The Instrument**
The instrument is a combination of parts of two pre-existing instruments derived for research on similar topics. A study by Koohang (2004) assessed the usability of e-learning courseware with a focus on user's perceptions of the courseware's usability, much as the current study assesses learner's perceptions of digital text features and use; both Koohang's work and this study also looked at the effect of technology experience on user experience and educational success. A study by Harley et al. (2006) assessed digital resource use in the undergraduate humanities and social sciences; as with the current study, Harley et al.'s this study emphasized the need for user studies to empirically understand the needs of users of digital learning tools.

The Likert item questions drew from both of the instruments used in these previous studies, as they provided a tested example of the assessment of a digital resource's user experience. The analysis of quantitative data also drew from Koohang's (2004) study; where Koohang compared years of Internet experience with assessments of e-learning courseware usability using ANOVAs, this study compared years of Internet experience and degree of experience with digital texts with the results of ten scaled-response questions assessing digital text use. Appendices A and B contain the sections of the Koohang and Harley et al. instruments that the current study emulated; appendix C provides the full set of survey questions used in this study.

The study instrument consisted of a three-part online survey. First, participants were asked to answer a short set of demographic questions. This section showed that the respondents covered a range of exposure to digital texts paralleling the range of exposure seen in the larger body of amateur digital text users; such a range of digital text exposure also allowed comparisons among two sub-groups: participants with no to little digital text experience, and participants with considerable digital text experience via work, school, or personal studies. Second, the participants were asked to spend time exploring one or both of the online digital texts the *William Blake Archive* and the *Walt Whitman Archive*. Because participants were meant to explore the digital texts as on their own initiative, no absolute directions for site use were

dictated[28]. Some suggestions were made to pique the participants' curiosity and aid those who had no interest in the sites' content areas; the participants were encouraged, however, to follow their own path and interests through the digital texts as much as possible. Third, the participants responded to a several-page web survey asking them to rate and describe their perceptions of their use of the digital text(s) they had just visited through written, multiple-choice, and scaled-response questions. The validity of the entire survey was determined by pretests of the instrument including a debriefing and a walk-through between the researcher and each pre-tester.

**3.4.1 Why surveys rather than interviews?** Harley et al. (2006) identified surveys as "the methodology of choice for assessing users' needs, motivations, attitudes, and satisfaction levels, as well as self-reported behaviors" (Rossi, Wright, and Anderson, 1983 as cited in section 2-6). Online surveys can streamline the data collection and coding process, allowing for a greater number of surveys to be studied; allow for questions to be customized to the participant given his previous answers; and allow participants a greater sense of privacy that may make their digital text use and responses more natural than they would be under observation (Harley et al., 2006, section 2-6 - 2-7). Since users' perceptions and not the series of steps they use in moving through a site were being evaluated, the refereeing of an observer was considered a step that unnecessarily moves primary reporting (i.e. written responses direct from the participants) to secondary reporting (observations of the user made by the researcher).

**3.4.2 Demographic questions.** The demographic questions posed by Koohang's instrument were expanded to gain a better picture of each participant's history of digital text use and academic background. Questions in this section of the survey included assessments of participants' years of experience with the Internet, degree of experience with digital texts, familiarity with several types of digitized text (e.g. Project Gutenberg and ebooks), and reasons for any previous work with digital texts.

**3.4.3 Scaled-response questions.** Scaled-response questions providing data for quantitative analysis were drawn from the two previous studies mentioned above. Koohang's (2004) study examined "users' current views about applied e-learning usability" and "users' perceived importance of e-learning usability design features" (p. 129). With "digital text learning" replacing "e-learning usability", the goals of his and this study are similar enough to warrant use of Koohang's instrument. Indeed, digital text use is a form of e-learning, differentiated only in that amateur digital text users are likely to be more mature scholars pursuing learning outside the structure of official academic courses. Both Koohang's and this study examined user perceptions of site where learning takes place, with specific attention paid to the individual features that assist users in answering research queries. The Koohang instrument asked participants to rank site features according to two standards: their perception of the features' inclusion in the site, and their assessment of the importance of these features to site use (2004, pp. 139-140); Koohang looked at how these scaled-response questions varied according to a user's length of experience with both the Internet and with the e-learning courseware under study (2004, pp. 131-132). His instrument was cut down and supplemented in order to provide data specific to this study's scope.

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28  More than one respected digital text was offered so that users could pick the content that most interested, and thus motivated, them; the digital texts participants could explore were limited to two so that the researcher was familiar with the quality and content of the digital texts.

Questions from the "Barriers and Frustrations" section of Harley et al.'s (2006) survey instrument supplemented these scaled-response questions (sections 10-16 - 10-18). Scaled-response questions based on Harley et al.'s work focused on both the user's perception of digital resources' content and organization, as well as the technical obstacles that can detract from a digital resource's technological benefits (Harley et al., 2006, sections 10-16 - 10-18).

**3.4.4 Narrative questions.** Because multi-choice questions and scaled-response questions cannot adequately express user perceptions, the survey also elicited narrative responses about amateur users' digital text experiences. These written questions, meant to probe digital text users' goals, motivations, requirements, and preferences, recorded the research queries of these amateur users of digital texts, the extent to which the users felt the digital text assisted them, and the process by which the users tried to answer their research queries.

**3.5 Ethics**
The study involved no unusual ethical considerations; the information gathered was not tied to personal identification, and the content of the responses was such as is routinely shared in public outside a research setting. The University of Michigan Institutional Review Board granted this study exempt status, as it involves no more than minimal risk to participants.

# Chapter Four: Findings

This study assessed amateur users' perceptions of the value of digital texts in terms of answering research queries. This chapter discusses the results of analyses of the demographic, quantitative, and qualitative data collected by the study survey.

**4.1 Demographic Data**

The first section of the web survey gathered demographic data on the 35 respondents. All respondents were current University of Michigan M.S.I. students when they answered the survey. This sample pool provided the study with individuals who fit into the digital text amateur audience; respondents were fairly well informed as to information studies concepts, including Internet use and usability design, but were not significantly experienced or invested in digital texts.

**4.1.1 Internet experience.** Respondents reported a range of seven to nineteen years of experience using the Internet, with a mean of 12.67 years and a median of 13.00 years. More than half the respondents have over a decade of Internet experience, and all the respondents had at least five years' familiarity with basic Internet navigation.

**4.1.2 General digital text experience.** Respondents reported their previous experience with digital texts. For this question, the study defined digital text experience broadly: academic use of digitized texts including electronic editions, digital archive or special library collection, and websites focusing on annotated texts and/or images. Such digitized texts were:
- "briefly used" (3 respondents)
- "use[d] occasionally" (8)
- "use[d] frequently" (16)
- "use[d] frequently and [the respondents] have participated in the development of a digital text" (8)

All of the 35 respondents had some previous exposure to some kind of digitized texts, and almost half the respondents reported using digitized texts frequently.

As will be shown in the next section, however, respondents' experience with digital texts did not often extend beyond straight digitized works, such as those offered on Project Gutenberg; use of scholarly digital texts for research was either fairly or completely new to the respondents. While eight respondents reported participation in the development of digital texts, they should still be considered amateur and not scholar users of digital texts, as "digital text" in this question was used to refer broadly to *digitized* texts. Those respondents who have assisted in the development of digital texts as they are defined for the rest of the survey (i.e. projects like the *Whitman Archive*) were not engaging in a life-long career, but in student-work, an internship, or limited tasks like data entry.

**4.1.3 Experience with specific forms of digital text.** Respondents recorded their degree of experience with a variety of forms of digitized text, both whether they had heard of/seen a given type of digital text and whether they had also actually used that type (see Table 1).

*Table 1. Experience with specific forms of digital text among respondents.*

|  | **Heard of/Seen** | **Used** |
|---|---|---|
| **Kindle or other e-reader** | 34 | 6 |
| **Project Gutenberg or other straight digitized texts** | 26 | 15 |
| ***Whitman Archive*** | 11 | 0 |
| ***Blake Archive*** | 11 | 0 |
| **None of these** | 1 | 2 |

Almost all the respondents had heard of or seen the Kindle or another e-reader (34), but only 6 respondents had actually used an e-reader. A majority of the respondents had heard of or seen Project Gutenberg or other straight digitized texts (26), and slightly less than half the respondents had used such digitized texts (15). Fewer respondents had heard of or seen both the *Whitman Archive* and the *Blake Archive* (11 each), and *none* of the respondents reported having used either of these archives. One respondent reported he had neither heard nor seen any of these types of digital texts (subject 3), and two respondents reported they had never used one of these types of digital texts (subjects 3 and 27).

All but one of the respondents had thus heard of or seen one or more of the listed types of digital text when they participated in this study, but most of their experience was with straight digitized text and not with the kind of feature-enhanced text digital texts offer; the respondents came to digitized text used for research purposes as amateurs; text on a webpage was familiar, but the features digital texts add to the plain text (e.g. textual analysis via the *Whitman Archive* TokenX tool) were unfamiliar ground. The respondents' frequent use of usability terminology in their narrative answers to the survey supports this description of an demographic experienced with general information technology concepts, but not with digital text use.

**4.1.4 Reasons for prior digitized text use.** Respondents reported the following reasons for their digital text experience: work (13), post-college school (22), college or earlier school (20), self-motivated learning (13), and other reasons (6: personal enjoyment/online reading). Significantly more respondents reported previous digital text use for school than for self-motivated learning or enjoyment; such reasons for employing digital texts might have pushed their use pattern toward searching for specific information rather than toward browsing for broader knowledge on a topic.

**4.1.5 Prior topical knowledge.** As the survey necessitated working with either the Walt Whitman or William Blake archive, respondents were asked if they had any unusual previous knowledge of Whitman, Blake, or their works. Five respondents described themselves as having this previous experience, either from English courses, majoring in English in college, or in one case through work with the Whitman site in SI 675 Digitization for Preservation. The respondents' previous knowledge of the digital texts' authors was never so deep as to make any a Whitman or Blake scholar.

**4.2 Quantitative Data**
The survey gathered numerically expressible data such as scaled responses, years of experience with both the Internet and digital texts, and fit with categorical variables. This section reports the findings of quantitative analyses of this data performed with SPSS and the R statistical programming language. A p-value of 0.05 was used throughout.

**4.2.1 Descriptive statistics.** Respondents were asked to answer ten scaled-response questions on a scale of 1-5 (1 = Strongly Disagree, 5 = Strongly Agree). The first five scaled-response questions assessed the perceived effectiveness and quality of the digital texts, and these scaled-response questions were set with a parallel structure so that agreement signaled a high estimation of the site's worth. The next four scaled-response questions assessed the respondents' subjective experience of digital texts and did not share a parallel structure; the final scaled-response question assessed respondents' access to computers able to effectively display a digital text.

*Table 2. Summary statistics describing the scaled-response question results.*

| | N | Range | Minimum | Maximum | Mean |
|---|---|---|---|---|---|
| The site(s) fit my Blake and/or Whitman learning questions | 35 | 3 | 2 | 5 | 3.80 |
| The site(s) presented enough information | 35 | 3 | 2 | 5 | 3.97 |
| It was easy to locate specific information | 35 | 4 | 1 | 5 | 3.37 |
| The site(s) made me interested in new things | 35 | 4 | 1 | 5 | 3.69 |
| The site(s) were easy to read | 35 | 4 | 1 | 5 | 3.23 |
| I find digital texts too overwhelming (too many resources are out there) | 35 | 4 | 1 | 5 | 2.63 |
| I find digital texts too underwhelming (not enough resources that match my interests exist) | 35 | 4 | 1 | 5 | 2.37 |
| The academic content of digital texts is generally of decent quality | 35 | 3 | 2 | 5 | 3.71 |
| Digital texts don't work for me because they involve too much reading on a computer screen | 35 | 4 | 1 | 5 | 2.66 |
| I don't have access to a computer/internet with the ability to accurately render digital text multimedia | 35 | 3 | 1 | 4 | 1.29 |
| Valid N (listwise) | 35 | | | | |

Table 2 presents summary statistics describing the results of the scaled-response questions. The range column shows how widely the responses varied for each question; the minimum and maximum columns indicate the smallest and largest number chosen on each question's scale by all respondents. The meaning of each question's mean is discussed more below.

A set of box plots describes the scaled-response question results with a focus on visually representing the range and skewness of the results (see Figure 4).
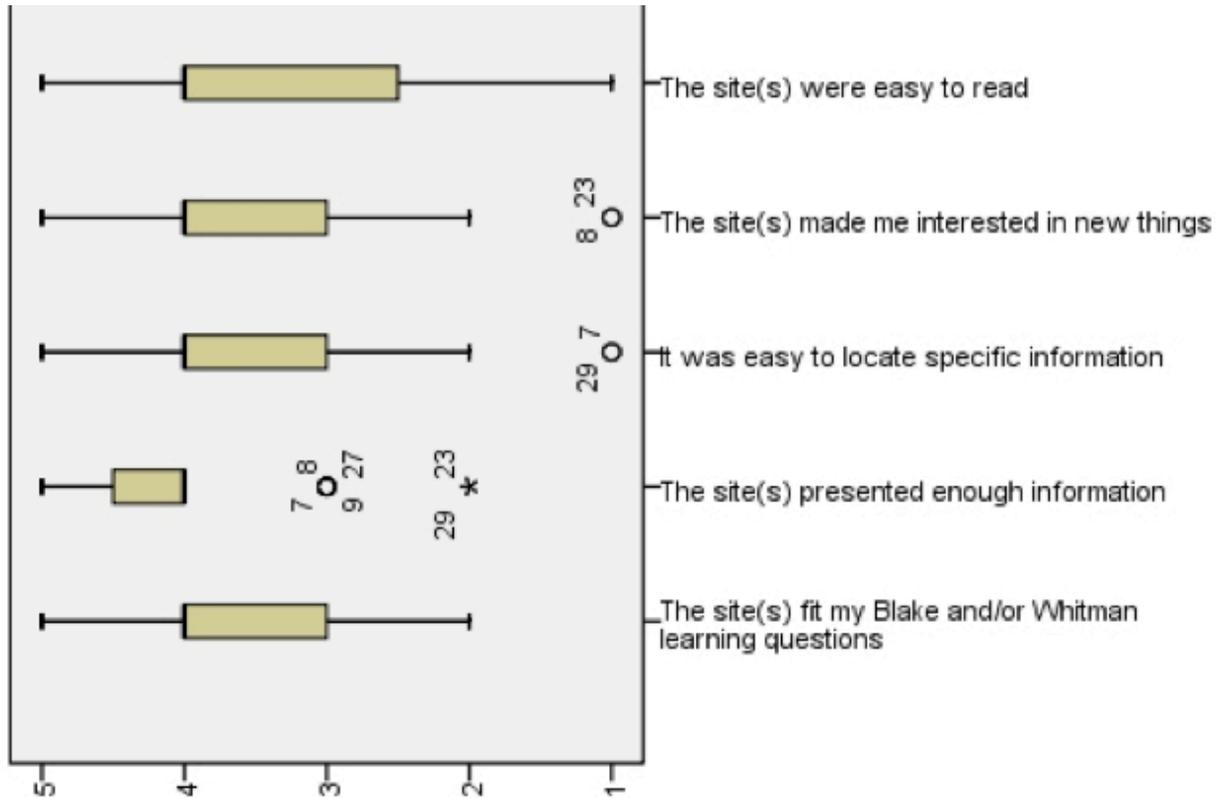


*Figure 4. Box plots of responses to the survey's first five scaled-response questions, on a scale of 1-5 (5 = Strongly Agree, 1 = Strongly Disagree).*

The mean responses to the following scaled-response question statements were all between a 3 ("neutral") and a 4 ("agree"):

      Question #1: The site(s) fit my Blake and/or Whitman learning questions
      Question #2: The site(s) presented enough information
      Question #3: It was easy to locate specific information
      Question #4: The site(s) made me interested in new things
      Question #5: The site(s) were easy to read
      Question #8: The academic content of digital texts is generally of decent quality

The average respondent was slightly more in agreement than neutral with these basic positive statements about the quality of the Blake and Whitman archives (questions #1-5) and digital texts in general (question #8). Respondents varied less on question #2 (respondents varied less in agreeing that the sites presented enough information), but varied more on whether the sites were

easy to read; respondents repeated these assessments of the Blake and Whitman archives, as well as digital texts in general, in their written comments during the survey (see section 4.4).

A second set of box plots describes the second set of scaled-response questions (see Figure 5).
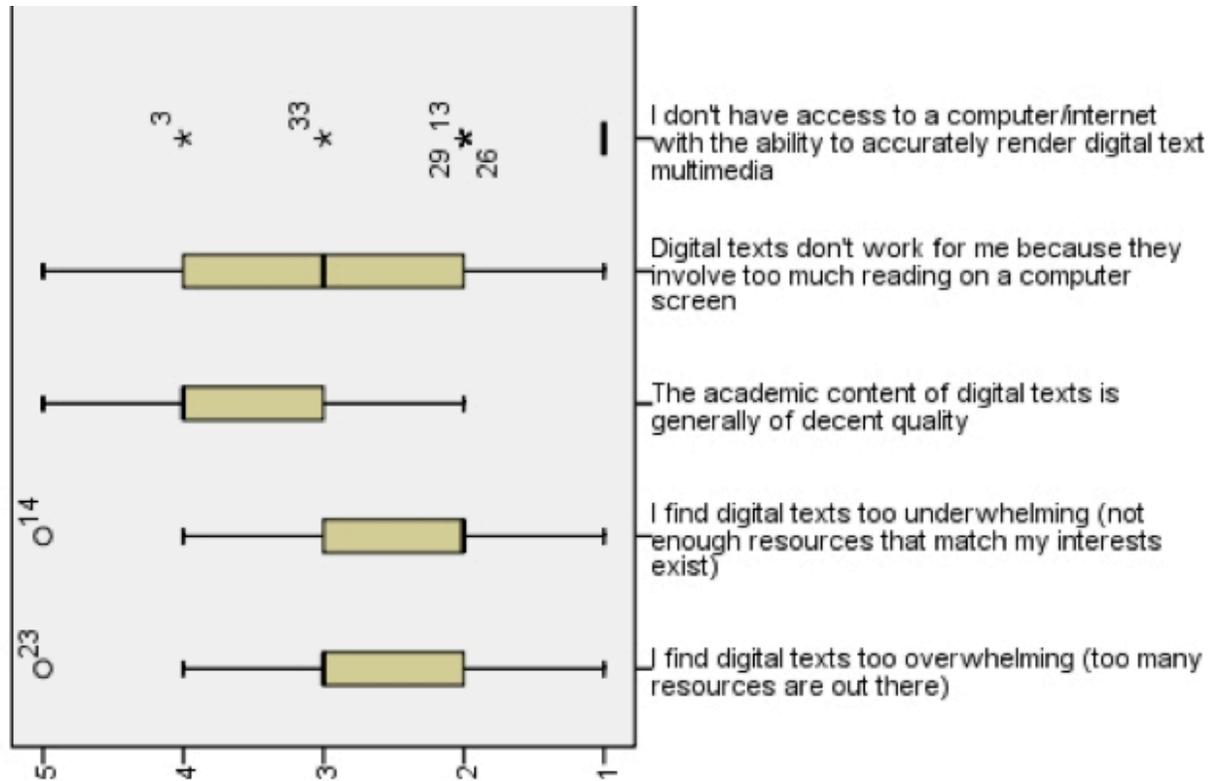


*Figure 5. Box plots of responses to the survey's second five scaled-response questions, on a scale of 1-5 (5 = Strongly Agree, 1 = Strongly Disagree).*

Scaled-response question #6 ("I find digital texts too overwhelming (too many resources are out there)") had a mean response of 2.63 (closer to "neutral" than "disagree"); scaled-response question #7 ("I find digital texts too underwhelming (not enough resources that match my interests exist)") had a mean response of 2.37 (closer to "disagree" than "neutral"). Most respondents reported that digital texts were neither especially overwhelming nor underwhelming; respondents were slightly less likely to find digital texts underwhelming than overwhelming, though a few respondents reported both difficulties.

The final two scaled-response questions dealt with computer display issues. Scaled-response question #9 ("Digital texts don't work for me because they involve too much reading on a computer screen") had a mean response of 2.66 (closer to "neutral" than "disagree"); with all respondents reporting at least seven years of Internet experience, respondents may not have enjoyed the screen reading required to view digital texts, but they also did not see screen reading as a major drawback to using digital texts. Scaled-response question #10 ("I don't have access to a computer/Internet with the ability to accurately render digital text multimedia") had a mean response of 1.29 (closer to "strongly disagree" than "disagree"), with several outliers; almost all the respondents had access to a computer and Internet connection that could accurately render

the digital texts. The one respondent who marked a 3 ("neutral") and the one respondent who marked a 2 ("disagree") may have been responding to difficulty with the Java components of the *Blake Archive* rather than shortcomings in their home technology.

**4.2.2 Inferential Statistics.** To determine whether respondents' degree of experience with Internet use and with digital texts affected their responses to the scaled-response questions, the study used the one-way ANOVA technique[29] to compare means between the scaled-response questions and both digital text and Internet experience. These analyses found no significant correlations applicable to the study[30] (see Appendices D and E). This failure to find a significant relationship between Internet experience or digital text experience and the scaled-response results suggest that a description of amateur audience digital text use should be based on characteristics other than length of digital text exposure or experience.

This finding also suggests that the amateur audience's degrees of experience with digital texts and the Internet are not related to their success with answering research queries. In fact, a chi-squared test of respondent experience with digital texts and perceptions of success or failure at answering research queries via digital texts failed to reject the hypothesis that there is no relationship between digital text experience and respondents' perceptions of digital text success or failure (the test produced a chi-square statistic of 1.119 and a p-value of .773, far larger than the preset significance level of 0.05; see Appendix F).

**4.3 Qualitative Data**
This section contains a discussion of the results of qualitative analysis of written responses, obtained using both software-supported (NVivo) and manual coding techniques. This discussion will cover the insights collected about amateur users' general use of digital texts, their success at answering research queries via digital texts, and their attitudes toward opportunities for new learning through digital texts.

The researcher coded survey data in two phases. First, responses fitting the survey's three areas of focus (the general nature of amateur audience digital text use, the amateur audience experience of answering research queries, and how experience with digital text impacts the discovery of new knowledge) were marked. Second, concepts voiced by at least three respondents (e.g. the affect of visual appearance on digital texts' credibility as learning resources) became new codes that were marked throughout the data during a second coding pass.

**4.3.1 The general digital text use of amateur users.** Amateur users wrote about what learning question they pursued in their digital text use, what features they used, and what features they felt were lacking or needed improvement for them to learn via the digital text.

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29  Koohang (2004) uses one-way ANOVAs to analyze similar data from his survey, parts of which informed the web survey discussed here: "The one-way ANOVA technique produces a one-way analysis of variance for a quantitative dependent variable by a single factor — independent variable. ANOVA tests the hypothesis that several means are equal" (p. 133).
30  The ANOVAs did show a significant correlation between reporting higher levels of agreement with the statement "I don't have access to a computer/Internet with the ability to accurately render digital text multimedia" and years of experience with the Internet (i.e. respondents with less experience with the Internet are more likely to not have access to the latest computers), but this finding was not deemed pertinent to the study.

***Research queries.*** When spending time with the digital text(s) as part of the survey, the respondents kept in mind a variety of research queries, from vague (finding out more about *Blake and Whitman*'s lives, their poetry and art, and the historical context for their work) to supplementary (reaching a better understanding of previously encountered specific pieces of work) to more specific, nuanced topics, including:

- "How *The Marriage of Heaven and Hell* ties into Aldous Huxley's *The Doors of Perception*... if there was a deeper connection between Blake's work and Huxley's work." (subject 4)
- The relationship between Blake's illuminations and the accompanying text (subject 5)
- The process of change and revision during Whitman's writing, with specific interest in *Leaves of Grass* (subject 15)
- The impact of Blake's boyhood visions on his later work (subject 7)
- The appearance of the authors' handwriting and other materialities of the original manuscripts (subjects 18 and 20)
- "Blake's relationship to Classical works and mythology" (subject 28)

Even though amateur users have less mental and emotional investment in the digital texts than scholar users, the respondents still explored fairly involved queries requiring lengthy, considered site use.
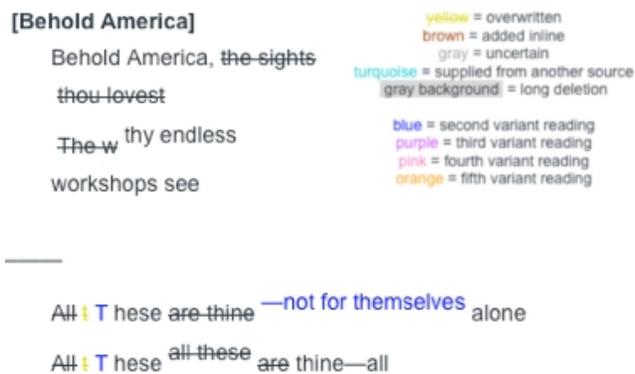


Figure 6. An example of an archival transcription on the Whitman Archive.

***General features used.*** Respondents commented on features of digital texts in general and features common to both the *Blake and Whitman* digital texts, as well as features from a specific but unnamed digital text.

The respondents generally liked seeing the materiality of original pages and drafts: "amazing... [the] ability to confirm text without go-between of scanner or interpreter" (subject 12). In many cases, the digital text's visual content was as much appreciated as the textual matter:

> I loved the ability to see the scanned images of originals... seeing it written down [on the original copy] is so much more emotionally fulfilling and pure. (subject 6)

Respondents felt that the digital text's representations of objects' materiality were interesting and important learning tools, as well as sources of intellectual stimulation; it is not only scholar-audience scholars who benefit from seeing more than the textual content of a resource.

Respondents mentioned instances of the original object with an authoritative transcript appearing side-by-side as positive features:

> I thought it was really interesting how the archivists really tried to represent what was written, as well as providing an actual copy of the text for users to look at. When they typed out what was in the manuscripts, they used strikethroughs and color coding to mean different things, you can figure it all out pretty quickly... helpful to get a trained person's direct translation. (subject 18)

Amateur users responded to being presented with more than just the textual content of a resource and appreciated the availability of professional interpretations and scholarly critiques.

**Walt Whitman Archive** *features used.* Respondents characterized the navigation and page hierarchy of the Whitman site (e.g. the clickable table of contents) as simple and intuitive: "The Walt Whitman site seems easier to navigate, because it does not have as many hierarchies or branches, compared to the other [Blake] archive" (subject 21). As amateur users have less investment in staying with a given digital text, an intuitive navigation system is important to them. In terms of general site navigation, respondents fond the layout of the *Whitman Archive* to anticipate their needs; for example, the Whitman biography was accessible with one click from the home page (Blake takes several clicks, and some respondents reported broken links within this path). At the level of textual navigation, the Whitman site's use of EAD may have led to respondents' reports of the Whitman site's navigational superiority over the Blake site.

In contrast to the *Blake Archive*, there was a general feeling that the *Whitman Archive* was a dynamic site, with any problems that readers encountered open to improvement: "I like the Comments section under 'Manuscripts' and the general comments link under every sub-main page" (subject 25). Respondents perceived the *Blake Archive*, in contrast, as built a while ago and not likely to see improvements. The sense that the Blake site's problems were unlikely to change distanced them from intellectual involvement with its content, but working with the growing Whitman site may have made them feel more active and exploratory in their learning. Where scholar users are used to consulting static or dated resources, amateur users may feel more familiar working with a "living" resource. The rising generation of born-on-the-web learners (which includes many of the study's respondents) interprets the constant shifts and improvements of active sites as showing credibility, while static sites appear devoid of editorial oversight, dated, and unreliable; one respondent remarked that though "the information there [in the *Blake Archive*] was good", the site "seem[ed] unreliable" because the site looked "very old" (subject 10). To appear credible to amateur users as valid learning resources, digital texts must share this active appearance; keeping a digital text looking modern may be an easy way to cater to a wider audience of learners.
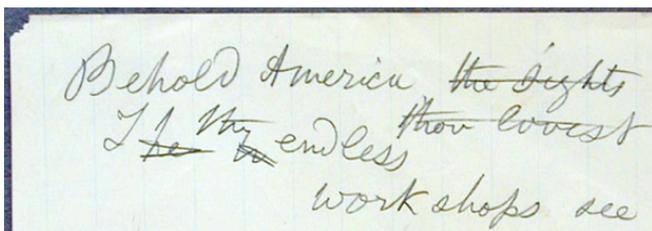


*Figure 7. The Whitman Archive lets visitors view original drafts.*

Most respondents who worked with the *Whitman Archive* commented positively on the pairing of document photographs with transcripts of the documents' textual content. The fidelity offered by the resolution and zoom tool improved on traditional Whitman resources: "I could see the poems the way Whitman originally published them and how he viewed them himself" (subject 6). The manuscripts section of the *Whitman Archive* gave respondents a good sense of the intent behind the drafts: "It was really instructive and interesting to see things added, marked out, etc. and see the creative process of Whitman at work" (subject 6). The presentation of the textual content gave readers a quick understanding of the revision process:

Color-coded versions of Whitman's poetry manuscripts - allows you to see all the ways that he marked up/changed his words over time, negating the idea of the finished form that you sometimes see in print and representing the fluid material he worked with. (subject 12)

Respondents appreciated multiple ways of examining textual and visual content; their amateur-audience status did not necessarily mean they were content with more shallow views of the resources than scholar users.

The respondents' only negative comments about the *Whitman Archive*'s existing features concerned the TokenX text analysis tool. One respondent reported playing with the tool, but not understanding its use for learning purposes: "The TokenX analysis tool seems more of a curiosity than a useful academic tool" (subject 19). Another respondent reported using TokenX "to search the frequency of the word 'love' in Whitman's poems and replace the word



Figure 8. The Whitman Archive's TokenX tool includes textual analysis features such as word cloud visualizations.

'love' with images of bicycles (entertaining, I suppose)" (subject 33). This failure to use TokenX towards learning suggests amateur users are not familiar with computer-aided textual analysis. Indeed, large-scale textual analysis is not a tool known to many individuals outside the digital humanities; better explanations of the use and possibilities of text analysis tools alongside such features might convince more amateur audience members to include textual analyses in their learning.



Figure 9. The Blake Archive tour tool walks new visitors through the site's features.

**William Blake Archive *features used.*** The *Blake Archive* saw far more negative comments than the *Whitman Archive*; the positive comments often contained caveats or were balanced by other respondents with opposite reactions.

The tour tool was one such controversial feature. Respondents praised the *Blake Archive* tour tool for introducing non-scholars to what a given digital text has to offer, though they sometimes encountered technical problems when using it. Some respondents found the tour "very impressive" and thought it was helpful for

readers on their first visit to the *Archive* (subject 3), while others found it "didn't really work for me" (subject 7) due to technical glitches: "It was not helpful - the images took a while to load. I found the frame layout and the long pages/constant scrolling distracting" (subject 9). An introduction or tour of a digital text's offerings might bring amateur users much closer to the

digital text dexterity level of scholar users; it is important to link to main concepts on the digital text's home page.
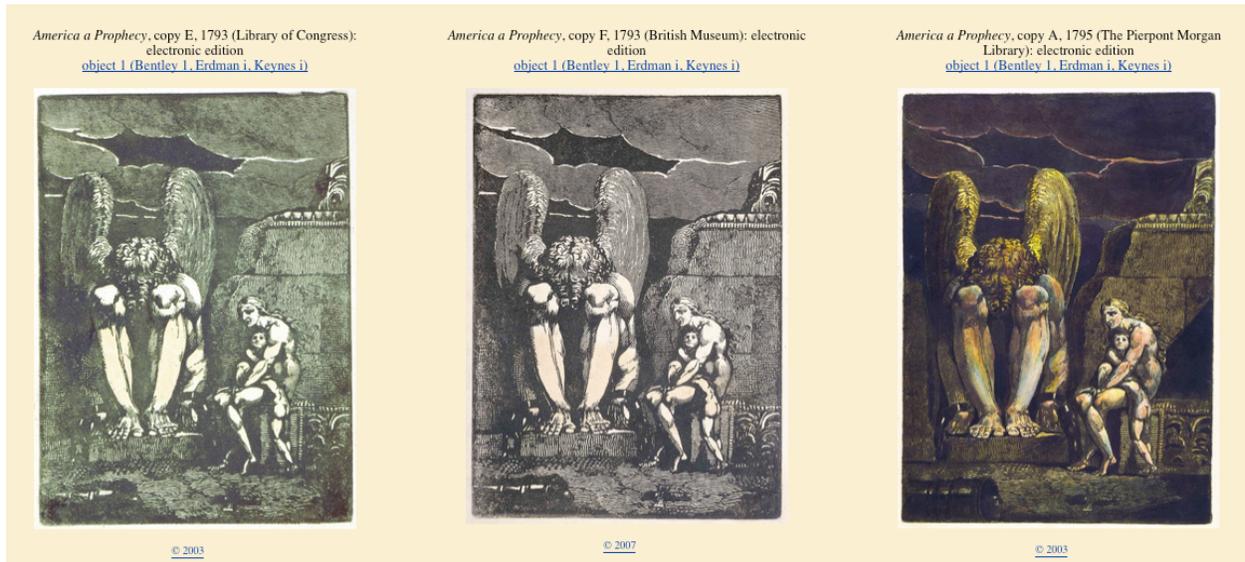


*Figure 10. The Blake Archive allows side-by-side comparisons of different versions of Blake's illustrations.*

The respondents were also split on the worth of the *Blake Archive*'s image-related features. Some respondents appreciated that you could look at two images side-by-side: "It makes it much easier to compare and contrast different versions" (subject 17); at least one respondent, however, had trouble locating this basic feature:

> The first time I pulled up an image the controls were apparently way down the page and I didn't even notice them—so I spent some time looking through sitemaps and stuff trying to find it. Finally found it, and it was fun. (subject 14)
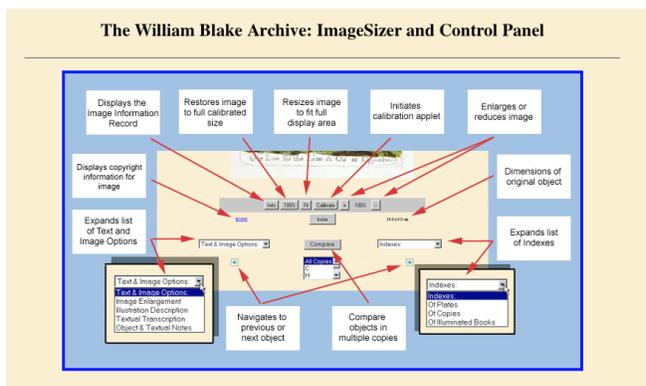


*Figure 11. The Blake Archive image-sizer feature has many options, including textual transcriptions, image enlargement, and version comparisons.*

Having control of the images via the various options beneath each visual was appreciated. Some respondents found that the image-sizer tool was useful, but again suffered from poor design ("the control panel is little bit inconvenient to use"; subject 29); one respondent found that the image enlargement option made reading from the original more reasonable (subject 17), while another respondent reported "because of the low resolution of images, it is not clear to read it although the images are zoomed in" (subject 29). Improving the design of the image comparison tool would approve its appeal to amateur users.

Unlike the visually intuitive *Whitman Archive*, respondents who used the *Blake Archive* expressed frustration both with browsing and searching. Browsing the site took too much effort; respondents found that the site hierarchy was not intuitive: "I basically kept referring to the home page to find my way around... it was kind of exhausting to navigate" (subject 7). Searching for specific materials or information was also complicated by the site's structure:

> The layout feels a bit awkward because there are so many options and, like with much of the site, it seems more designed for presenting information rather than making the information easy to access. As a casual user, I find the steps needed to get to an image to be annoying, especially since I am used to looking for images on Google Images and having results fed to me immediately. (subject 4)



*Figure 12. The Blake Archive image search includes a long list of subject checkboxes.*

Some respondents liked the image search's checkbox design ("If I wanted to see a picture of a particular animal or object, I could select it from the checklist"; subject 4), while others found it confusing and requiring too much effort (e.g. "the search function for pictures seems too complex. Maybe it can be changed to... just put keywords in the input box rather than checking multiple checkboxes"; subject 3). Amateur users need intuitive navigational hierarchies and a simple way to browse through a digital text's offerings. The *Blake Archive*'s use of XML rather than the archive-specific EAD is probably contributes to the site's complex navigation and the resulting frustration of its amateur users.

***Features desired.*** The respondents were asked to comment on digital text features that needed improvement, creation, or deletion in order to better aid their learning. Most of the requests seemed to fit the needs of scholar as well as amateur scholars:

> I was able to get everything out of the text. The inability to put information back into the text was more limiting: I would like to be able to mark the text up (highlight, write marginalia and other notes), but instead have to make notes elsewhere. (subject 19)

A few requests were more aimed at general browsing than academic research. These scholar-audience-specific requests included "videos with narrative, like those used in museums" (subject 11) and more starting-place ideas for the casual, undirected learner:

> The only other feature I can see is maybe making more easily accessible, directly from the front page, popular works of the respective author or new and/or interesting things a viewer may want to see. (subject 6)

Though several of the respondents' requests dealt with features that would not be of use to scholar users (e.g. introductions to topics and more visual, interactive proof of its intellectual worth), the majority of respondents' suggestions for digital text improvements would also benefit scholar users (e.g. annotation features).

The navigation, search, and page structure was one of the main areas respondents cited as needing improvement:

> If these archives are used as digital text for learning, I think they should be clear and well organized. And the most important to me is that they should make it easy for users to search what they need. (subject 3)

The *Whitman Archive*'s navigation was accepted as decent: simple and intuitive (subject 21). Respondents felt the Blake site, however, felt "a bit awkward" (subject 4); the *Archive* required a more transparent navigation hierarchy, less text per page, and more intuitive visual indications of navigation. The depth of the Blake hierarchy was a problem for users seeking to move from one line of query to another:

> Navigation... is increasingly difficult as you get deeper into the architecture... in general this makes me inclined to leave a page quickly. (subject 12)

Browsing through images to get a general sense of their contents was difficult and slow. Respondents suggested improvements such as an expandable central navigational toolbar on every page, and a front page that lists the site's offerings as well as a quicker, non-glitchy tour function. The length of the pages was another issue for navigation; several respondents had trouble locating items because they were so far under the "fold" (subject 35), or felt the effort of scrolling through the long pages not worthwhile:

> [The *Blake Archive*] got serious UI problems. You can't expect users to scroll all the way down to click a button and scroll all the way up to get the lists. (subject 23)

While some of the navigation issues respondents reported were caused by lack of investment in their learning and subsequent desire to expend little effort in their research, many of the respondents' recommendations for improvements to digital text navigational and structural features would also serve scholar users. When creating digital texts with an amateur audience in mind, however, designers should note that amateur users have a low tolerance for site errors and complex navigation.


The design of a digital text, in terms of ease of use and how its "look" affected credibility, was the other major area where respondents suggested improvements. The *Whitman Archive* was considered acceptable in terms of design, and the simplicity of the layout encouraged further reading: "I wouldn't change a thing... It is well organized and easy to read. If I had more time to read everything I would" (subject 21). In contrast, the *Blake Archive*'s design lost the site credibility and the interest of its readers:

> The site is ugly. By ugly, I mean poor font choice, strange color combinations, a cluttered display. It made me not want to learn much about Blake. As superficial as this sounds, I just did not want to pay attention to it anymore and the appearance of the site made the resources seem less credible. (subject 7)

Respondents suggested more modern web design techniques (cleaner CSS and a move away from frames; subject 9) to help the Blake site reach the level of the "readable and professional looking" Whitman site:

> The *Blake Archive* looked very old and unimpressive. The information there was good, but the look and feel of the site made it seem unreliable. Easier navigation and better design (fonts and colors at least)...would help users to find the information they need and feel that they can trust it (subject 10)

The respondents believed that the *Blake Archive*'s design would deter casual learners from using the site ("just the rather inelegant layout of the first page is, I think, enough to drive many potential users away"; subject 16). A few respondents were not bothered by the site design:

> What I felt was good about these sites were that they did not use flash or other dynamic
> web content that too often obscure the information seeking process. (subject 33)

For the most part, even amateur users, with their lack of intimate acquaintance with a digital text's topic areas, were apt to judge the academic quality of a digital text from its design and structure, and adjust their willingness to use the digital text as a learning resource accordingly. Digital text designers must not only design for academic use, but for an initial visual effect of usefulness and credibility.

**4.3.2 Research queries.** A second portion of questions on the survey dealt more directly with respondents' experience of answering research queries via digital texts: whether they felt successful at their digital-text-enhanced learning, their reasons for and reactions to encountering learning failure or lack of proper information, and whether they would use a digital text for learning in the future.

***Success at answering research queries.*** Respondents were asked whether they felt successful in answering the research queries they had brought to their work with the digital text(s), or could be if given enough time. 29/35 respondents said yes, they felt successful, while 6/35 responded with "no." Respondents were asked to speculate what reasons might result in their feeling unsuccessful in learning via digital texts. 7/35 respondents said they had experienced (or could imagine experiencing) difficulty understanding what the site offered, 13/35 cited trouble with site features (e.g. navigation), and 7/35 said they weren't certain enough what they wanted to learn while using the digital text.

A chi-squared test discussed in section 4.2.4 failed to find a relationship between these results and respondents' experience with digital texts; if perception of success or failure with a research question is not dependent on familiarity with digital text features, than the features themselves may be the issue. The frequency of trouble with site features such as navigation keeping amateur users from feeling successful at answering their research queries is fortunately an area where use of archive-specific structuring tools and specifications, such as EAD, could increase amateur user learning success. More detailed introductions to a site's offerings, perhaps through short videos or tours that could be skipped by scholar users, would also aid amateur users in understanding what a site offered and how it could aid their learning.

***Responses to learning frustration.*** The survey asked respondents how they would react (or had reacted) to feeling like they were not getting the information they wanted when working with a digital text. Some respondents felt overwhelmed in the face of so much information, though they liked having so much knowledge readily available and did their best to navigate to the information they wanted:

> I felt like I was getting too much information at times, which made it hard to focus on the
> information I was getting and wanted to look over. I can certainly understand the archive
> trying to err on the side of caution by giving too much instead of too little, but it was
> annoying at times from a user's perspective. (subject 4)

If the digital texts' navigation was poor, however, many respondents would eventually leave the site ("Only a serious interest or a school research project would keep anyone involved if the navigation and maneuverability of the site is poor"; subject 12). These respondents reported they would turn to Google or libraries:

> I think there are lots of information that is unshared and only existed in textbooks, and if I can't find it in digital text, the only thing I can do is going for papers. (subject 11)

Amateur users appear to have less tolerance for difficulty navigating digital texts than scholar users. The improvement of finding aids through choices like EAD could reduce these frustrations.

*Future digital text use.* When asked whether they would use a digital text in the future if one were available for the topic in which they were interested, 0/35 responded "no", 24/35 responded "yes, in combination with a traditional resource", and 11/35 responded "yes, in preference to a traditional resource". Even for respondents with little previous digital text experience, use of the Blake and Whitman archives made a good enough impression that all the respondents would incorporate a pertinent digital text into their future learning. The respondents were not yet ready to rely solely on digital texts for learning, however; over twice the number of respondents would use a digital text along with traditional resources as would use a digital text in preference to traditional resources.

Of the respondents who would use a digital text in combination with traditional resources, two additionally explained their partial reliance on traditional resources. One cited an unfamiliarity with the features of digital texts; he mentioned liking the ability to highlight and bookmark text, but was not sure digital texts allowed these features: "In the digital text (if I could do the same), I will be glad" (subject 2). The second commenter felt the design and architecture of digital texts was not up to par:

> Most of the digital archive are a little of boring, I mean the visual and layout of the information is not good enough. But I like Wikipedia which is simple with visuals and searchable. (subject 11)

As the respondents' comments sometimes showed an unfamiliarity with all the scholarly tasks with which a digital text could assist, better marketing and explaining of digital texts features to the amateur audience is also necessary.

**4.3.3 Perceptions of new knowledge available via digital texts.** Respondents were asked to report ways (if any) they felt digital texts could help them achieve new kinds of learning as compared to traditional resources.

*Offloading old ways of learning.* Respondents were asked how digital text features affected answering their research queries. What were the ways they felt a digital text could help them learn?

Some respondents misunderstood the question and cited ways that digital text made traditional ways of learning easier. Digital texts were described as

- time-saving tools: "the ability to integrate with citation tools can keep clutter down and organization up" (subject 19)

- comprehensive resources: "a good 'one-stop-shop'" (subject 25), "a pretty comprehensive overview of the subject all in one place" (subject 17), "Because they have so much information all in one place, they are a good start for someone looking to learn about someone" (subject 13)
- easier to navigate: "I was looking for a particular Blake quote that Aldous Huxley referenced, so finding the quote in his works was much easier in the search of digital texts than browsing through a paper text" (subject 4)
- easier to access than physical libraries: "It's much easier to browse using links and browser forward/back buttons than browsing library shelves" (subject 9)
- easier to search than paper books: "the easy access to criticism also means that you can switch easily back and forth between primary and amateur sources, drawing inspiration from one and developing it by referring to the other" (subject 14).

It is important to note how much emphasis the respondents placed on offloading work and preventing fatigue when asked about "new" types of learning. For amateur users, the kind of intense research activities (e.g. combing through indices, tracking down all versions of a text) is less possible than it is for scholar users. Because of their lack of investment and experience and constraints on their time and resources, the streamlining of traditional scholarly activities *almost constitutes a new kind of learning for amateur users*. Without digital texts, these learners might be less likely than scholar users to perform the extensive research activities needed to make similar connections among physical resources (e.g. travelling among different repositories and searching for topics not included in physical indices); when marketing digital texts to amateur users working outside of academia, digital humanists should realize that the offloading of scholarly activities may be more intellectually exciting to amateur users than it is to scholar users.

***New ways of learning.*** Eight of the 35 respondents (subjects 10, 12, 17, 20, 25, 28, 33, and 35) cited new types of knowledge that could not be achieved even with traditional resources and great patience. Elsewhere in the survey, even more respondents beyond these eight reported new types of learning: "different interactions... that help me learn, kind of like learning by doing things" (subject 11). The establishment of relationships and connections was a common theme; "referencing or tagging broader sources online" (subject 7) and comparison tools for images, text, and transcripts could provide the

> ability to see beyond what other interpretations may not have included (physical descriptions of pages, or handwriting, etc), as complete a look at the material as you might get without being at the specific library responsible for that text. (subject 12)

Digital texts make visible chronology and the authorial process in ways books cannot:

> In the *Whitman Archive* you can see the author's train of thought almost in the poems that were in the manuscript section. This can help you fully understand the meaning behind the poem better than if you were just reading straight text. (subject 5)

Amateur users are capable of reaching and appreciating the same types of "new knowledge" that scholar users attain through digital texts.

Respondents saw the inclusion of dynamic web elements in digital texts as a door to academic inspiration and excitement, providing immediacy and insight: "multimedia can give a more complete and interesting view of a subject" (subject 10). Although amateur users were more

enthusiastic about digital text's ability to offload traditional scholarly activities, the learners were also aware of some of the new learning possibilities digital texts offer. Respondents reported that gaining new types of knowledge by taking a macroscopic view of materials; following extended trains of though, connections, and relationships; and interactivity with materials were all ways they saw digital texts as provided both new knowledge and intellectual stimulation.

# Chapter Five: Discussion

This study raises questions about improving and extending user studies on the amateur digital text audience, and the possibility of designing digital texts to benefit a broader audience without losing the features the scholar audience requires.

**5.1 Discussion of Data**
Data on amateur digital text users' general digital text use, management of research queries, and experience of new types of knowledge via digital texts was gathered and analyzed.

**5.1.1 Research Question #1: General use.**
One of the study's three areas of focus was describing general digital text use by amateur users: *what* amateur users are trying to do with digital texts and *how* they are going about doing it. The results of the survey suggested that amateur users' responses to the presentation of digital texts are not very different from the types of responses one might expect to see from scholar users. The respondents' suggestions for feature additions to the digital texts, for the most part, would also benefit scholar users (e.g. annotation features). Areas perceived as needing improvement in the digital texts were technical glitches, lack of clear intuitive hierarchies, and poor visual design choices; especially with the Blake site, these shortcomings affected a digital text's perceived credibility as a learning tool and length of use session even when the site was perceived as built on extensive and reliable information.

Scholar digital text use, in comparison to amateur use, has been characterized by greater investment in a specific digital text and greater experience with digital text use in general. The study looked at two factors related to the latter characteristic: level of experience with digital texts and level of Internet experience. Neither of these factors correlated significantly with scaled-response questions assessing the perceived effectiveness and quality of the digital texts and the respondents' experience of the digital text learning experience.

Of the respondents' comments that seemed uniquely characteristic of amateur digital text use, the most common were suggestions for more thorough introductions to the digital texts' topics, including multimedia introductions to content areas. These comments pointed to a categorical difference between scholar and amateur digital text use: respondents reported themselves to be "browsers", while imagining more experienced scholars to be "searchers" with greater use for the features requiring previous knowledge of the content: "The search tools seem powerful enough for a Blake scholar to find what they want, but the site does not seem geared towards introducing users to Blake or geared toward a casual user in general" (subject 4). Respondents regarded the text-heavy presentation as "very useful for serious scholars" who would want immediate access to extended metadata around an object, but "not entirely intuitive" for other learners seeking answers to introductory queries about a digital text's topic (subject 28); a divide between "learning" and "research", with the former being a more passive and undirected activity, was also a theme in the comments.

**5.1.2 Research Question #2: User research queries.** The study further focused on digital text use related to amateur users' perceptions of answering research queries.

The study suggests that amateur users are generally able to answer their research queries via digital texts, even when these queries are fairly complex. As will be discussed below, many of the respondents' reported research queries were fairly close-ended, and their descriptions of using the digital texts suggested more browsing than directed searching. It is unclear how successful amateur users would be at noting broader intellectual relationships or seeking answers to queries requiring stronger arguments and more carefully gathered proofs to answer; such queries might not be well served by the amateur users' browsing technique.

All of the respondents were open to using digital texts for real learning situations in the future, though some said they would not replace traditional resources with digital texts but use the two types of resources in combination. Some of the respondents who imagined using both types of resources also mentioned an unfamiliarity with the full possibilities of digital texts (e.g. they wanted to use traditional resources because they were unaware that some digital texts allow note-taking and highlighting), while others felt that visual design flaws in digital texts made traditional resources more useful for longer learning projects.

**5.1.3 Research Question #3: Experience and new knowledge.** The new knowledge possible through digital texts (i.e. knowledge not obtainable via traditional learning resources) was a third area of the study's inquiry.

The survey attempted to identify *if* amateur users are making new inferences and connections via digital texts. When queried as to the types of learning they felt digital texts could support, the majority of respondents described ways digital texts offloaded repetitive and time-consuming task and made traditional resource use easier through online access or centrality of related resources. Fewer respondents noted that digital texts also allowed new ways of learning. These respondents noted that digital texts could lead to new knowledge by showing a macroscopic view of materials including trains of thought and other relationships among resources. The intellectual stimulation provided by the interactivity of digital text materials was also cited as a type of learning specific to digital texts.

The consensus seemed to be that digital texts were helpful because they made research quicker and more centralized. This attitude might be due in part to the limited amount of time respondents spent with the digital texts, which may have prevented them from figuring out how more advanced features could be used. Amateur users' typical approach to research might also influence their attitude toward digital texts as simply faster versions of traditional resources. A graduate student most frequently seeks to answer a research query for either extrinsic reasons such as a grade on a class assignment, or for clearly defined goals such as locating the earliest date an author mentioned a specific idea. Such a habit might flavor his use of a digital text, leaving him closed to the opportunity for maker broader connections among resources. Finally, some of the digital text features that allow scholar users to find new types of knowledge require a knowledge of digital text navigation and concepts that amateur users do not hold. For example, the *Whitman Archive*'s textual analysis tool TokenX might help a scholar user notice interesting relationships among distant parts of a Whitman draft, but such knowledge is closed to amateur users, who are generally inexperienced in textual analysis.

While the amateur users' understanding of digital text concepts and research approach might hamper their attainment of new types of knowledge via digital texts, this study's results show that amateur users' various degrees of experience with digital and digitized texts were not correlated with their perceptions of the digital texts presented in the study survey. Respondents' perceptions of their research success with the digital texts were also not related to their degrees of prior digital text experience. These results suggest that amateur audience digital text use and research success varies according to factors other than experience with other types of digitized text. The study revealed variables among its amateur digital text users such as degree of web design experience, knowledge of traditional literary analysis techniques, a browsing versus searching research approach, and the pursuit of objective versus subjective research answers; whether any of these variables are related to a respondents' perception of digital texts should be explored.

**5.2 Methodological Notes**
Several issues requiring change or consideration arose due to the study's methodology and constraints; these issues should be addressed in future research in order to provide a better participant experience and clearer results. Moving to a controlled field experiment methodology could overcome many of these issues by increasing the participants' investment in the study's tasks and providing them with immediate answers to any questions about survey requirements or definitions.

**5.2.1 Survey response rate.** This survey response rate suggests changes need to be made either to compensation or required effort in order to gather a greater number of responses. The survey software registered 183 total responses (including both partial responses and complete responses), but only 35 completed responses. While the number of abandoned surveys may be slightly inflated by respondents returning to the web survey to complete it at a later time, the high number of "falloffs" (records of the last page of the survey viewed before exiting) on the third page of the survey suggests much of this attrition was due to the time and effort required by the survey; the third page, which asked respondents to spend time with a digital text before answering more survey questions, occurred after an introductory page and one page of simple demographic questions. Future surveys can reduce their length by focusing on more specific aspects of the digital text learning experience, which should increase respondent willingness to provide detailed answers. Greater clarity about some of the survey's terminology[31] would both reduce perceived effort on the part of respondents and provide greater certainty during results analysis that respondents are replying to the same question.

**5.2.2 Sample bias.** The bias created by the limiting of the survey sample to M.S.I. students at the University of Michigan's School of Information should be taken into account. This sample presented an excellent pool for an initial user study; drawing amateur users with various academic and career backgrounds but similar basic knowledge of digital texts, HCI, and information terminology allowed the survey to make certain assumptions about respondents' understanding of terminology and ability to describe design features and learning experience. The characteristics of the sample pool might bias the results in unexpected ways as well; for example, the M.S.I. students' knowledge of informatics vocabulary may have primed even those

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31 Two sources of confusion for respondents were what constitutes a "digital text" versus the digitized examples mentioned in a demographic question, and the difference between primary audience experience with developing a digital text and work-study or data entry work on a digital text project.

new to digital texts to intuit their structure more quickly than other amateur users would. Future studies should broaden their sample pool, not only to prevent bias related to University of Michigan M.S.I. students, but to draw from the full array of amateur digital text learners, from young master's students to retirees embarking on self-motivated learning to experienced scholars working outside the scholar audience of a digital text.

**5.2.3 Scaled response question design.** The design of the scaled-response questions was a final notable issue in the survey's methodology. These items were designed to show the perceived effectiveness and quality of the digital texts as well as the respondents' experience of the digital text learning experience; analysis of the items against two categorical variables (degree of Internet and of digital text experience) yielded no significant correlations. For greater clarity for respondents, future scaled-response questions should be standardized as to parallel positive or negative statements; the statements themselves should be revised based on the qualitative results generated from the survey.

**5.2.4 Usability data.** This study's survey was written to eschew usability research, The necessity of understanding the basic components of amateur user digital text use, however, meant that some survey questions lead to usability-style evaluations of site features. While the usability data helps to paint a clearer preliminary picture of amateur audience digital text use, a future study that focuses more cleanly on issues of digital text use might lead respondents to be more reflective about their research process instead of focusing on the good and bad qualities of the digital texts being studied.

**5.3 Future Steps and Recommendations**

**5.3.1 Audience.** Despite the variety of digital text use reported, much of the respondents' comments describing their digital text learning needs did not appear to be uniquely characteristic of an amateur audience; although a scholar audience was not evaluated, one can imagine many of their comments evaluating the digital texts to be similar, if more specific. This similarity was most striking in respondents' analysis of how features of the digital texts could be improved to support learning.

Less evident, but more unexpected, was the similarity to scholar user's digital text thought in some of the respondents' descriptions of the possibilities digital texts offer for learning. Descriptions of "new learning" offered by digital texts included an understanding of new relationships and connections familiar to digital humanists, but assumedly not to the respondents; such a resemblance between scholar and amateur audience thought about the full possibilities of digital texts suggests a uniformity in learning use that may mean digital texts could successfully be designed to benefit both audiences. With even scholar-audience-focused digital texts like the Blake and Whitman archives supporting amateur users, educating amateur users about digital texts' existence and basic features might be just as important as altering digital texts to accommodate any additional needs of amateur users.

This study drew its sample from just one subgroup of the digital text amateur audience. Though limiting the study to this subgroup was partly a measure of convenience, the use of a subgroup with high levels of both Internet savvy and self-motivation also assists in any arguments digital

humanists wish to make for amateur-audience-aimed design changes to digital texts. Designing digital texts to serve any person who happens to visit these sites is not only impossible, but also unnecessary. By expanding digital text features to also cater to subgroups of the amateur audience who are already motivated to learn and who understand basic Internet use conventions, digital text developers can help an important segment of learners without expending an unnecessary amount of resources or cluttering up their sites' layouts. Subgroups of the amateur audience with similarities to this sample pool (e.g. scholars at a high academic level than this study's sample pool) should next be evaluated to determine whether they could benefit from the same changes that this study's subgroup suggested.

**5.3.2 Future User Studies.** A next step in evaluating the amateur audience's use of digital texts would take a grounded theory approach: developing a theory based on the results of this introductory survey, then basing further user studies on that theory. The results of the initial question posed by the quantitative analyses from this survey—do amateur users with greater Internet or digital text experience digital texts differently than users with less experience?— suggest that a description of amateur use based on something other than length of digital text exposure or experience should be developed.

The categorizations of "browser" and "searcher" revealed by this study's qualitative analysis could provide a new starting point for examining how amateur users experience learning with digital texts; amateur users' motivations for learning with digital texts might also be explored. The survey results indicate that self-motivated amateur users desire learning different ends than amateur users coming to digital texts because of school or work assignments; designing digital texts to also help internally motivated amateur users might be less detrimental to the needs of scholar users than designing to the needs of externally motivated amateur users. Future research could focus on one specific user learning process (e.g. analysis of changes in manuscript drafts over time) or use of digital text feature (e.g. the Blake image comparison tool) in order to develop a better understanding of the average amateur response to these factors. Once a greater literature of amateur user studies has emerged, scholar and amateur users can be compared on a non-anecdotal footing.

**5.4 Conclusion**
Beyond further studies of specific features of digital texts, advocates of digital text use by an amateur audience should begin to develop a list of features that

1.  user studies show support amateur-audience learning,
2.  cause little or no distraction to the scholar users of a digital text, and
3.  require only small cost and effort on the part of digital text developers.

Digital text developers should also explore ways to incorporate those features that are less in-line with the scholar audience's needs, but useful to an amateur audience (e.g. supporting browsing instead of searching, displaying introductory materials on the main pages of the site, and creating multimedia introductions to topics); perhaps digital texts could begin to support portals to interfaces optimized for different types of digital text use.

Digital humanists must accept the need for empirical user studies of tools such as digital texts, and developers should not ignore the needs of learners outside of the immediate circle of a resource's users. The most important step in furthering the digital humanities toolbox is to continue working directly with actual digital text users: "Only by carrying out evaluation with our users can we find out how the digital resources we create are actually being used" (NINCH; 2003).

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**Appendix A: Part of Koohang's (2004) instrument (pp. 138-140).**

Drawn from Koohang, A. (2004). Expanding the Concept of Usability. *Informing Science Journal*, 7, 129-41.

# Appendix

## E-Learning Courseware Usability Survey

The purpose of this survey is to gather information about e-learners' perceptions toward e-learning courseware usability. Please take a few minutes to complete this survey based on your experience with the e-learning courseware you have been using for your distance education course(s).

**Please do not leave any questions or statements blank.**
Notes:
1) Your participation in completing this survey is absolutely voluntarily.
2) You must be 18 years or older to complete this survey.
3) All your responses are kept confidential. Do not put your name on this survey.

**SECTION 1**
Please answer the following questions by circling the appropriate number:
**Gender:**
(1) Male
(2) Female

**Years of Experience with the Internet:**
(1) 1 – 2 Years
(2) 3 – 5 Years
(3) Over 5 Years

**I spend an average of _____ hours/week on the Web-based Platform:**
(1) Less than 4 hour
(2) 4 - 6 hours
(3) More than 6 hours

**SECTION 2**
Using the scale below, please indicate your response to each of the statements regarding the usability of the e-learning courseware you use for e-learning course(s).

**SCALE:**
5 = Strongly Agree, 4 = Agree, 3 = Neither Agree nor Disagree, 2 = Disagree, 1 = Strongly Disagree

1. *Simplicity:* The e-learning courseware is uncomplicated, simple, and straightforward.
   5    4    3    2    1
2. *Comfort:* I feel comfortable using the e-learning courseware.
   5    4    3    2    1
3. *User-friendliness:* The e-learning courseware is easy to use.
   5    4    3    2    1
4. *Control:* I feel in control throughout the e-learning courseware.
   5    4    3    2    1
5. *Navigability:* I can easily get to where I want to go throughout the e-learning courseware.
   5    4    3    2    1
6. *Load/access time:* I don't have to wait a long time for the pages to load.
   5    4    3    2    1
7. *Readability:* I have no problem understanding the language used to present information.
   5    4    3    2    1
8. *Adequacy/Task Match:* The information presented is enough. It is no more/no less than what I need to know.
   5    4    3    2    1
9. *Link Visibility:* The links throughout the e-learning courseware are visible.
   5    4    3    2    1
10. *High color contrast:* The color contrast of the text is high.
    5    4    3    2    1
11. *Appropriate font type and size:* The type and size of the fonts used to present information are appropriate.
    5    4    3    2    1
12. *Well- organized:* The information in every page is well-organized and structured.
    5    4    3    2    1
13. *Visual Presentation:* The visual presentation such as text boldfacing, italicizing, and underlining exist.
    5    4    3    2    1
14. *Recognition:* I quickly recognize the key points presented throughout the e-learning courseware.
    5    4    3    2    1
15. *Information relevancy:* The information presented is relevant to what I am supposed to learn.
    5    4    3    2    1
16. *Right to the point information:* The information is concise and right to the point.
    5    4    3    2    1
17. *Consistency:* There is consistency of appearance, terms, words, and action throughout the e-learning courseware.
    5    4    3    2    1
18. *Feedback:* The e-learning courseware provides feedback.
    5    4    3    2    1
19. *Direction:* Directions on operating the e-learning courseware are given when I need them.
    5    4    3    2    1

**SECTION 3**
*Using the scale below, please rate the importance of each of the usability properties to your use of the e-learning courseware.*

*SCALE:*
*5 = Very Important, 4 = Important, 3 = Somewhat Important, 2 = Slightly Important, 1 = Not Important at all*

1. The importance of **Simplicity** (Simple & straightforward to use)

   **5   4   3   2   1**

2. The importance of **Comfort** (Being at ease with the e-learning courseware)

   **5   4   3   2   1**

3. The importance of **User-friendliness** (User-friendly, easy to use e-learning courseware)

   **5   4   3   2   1**

4. The importance of **Control** (User being in control of e-learning courseware)

   **5   4   3   2   1**

5. The importance of **Navigability** (Being able to easily move around throughout the e-learning courseware)

   **5   4   3   2   1**

6. The importance of **Load time** (Not having to wait a long time for information to load)

   **5   4   3   2   1**

7. The importance of **Readability** (understanding the language used to present information)

   **5   4   3   2   1**

8. The importance of **Adequacy/Task Match** (enough information, no more, no less)

   **5   4   3   2   1**

9. The importance of **Link Visibility** (visible links)

   **5   4   3   2   1**

10. The importance of **High color contrast** (High color contrast for presenting information)

    **5   4   3   2   1**

11. The importance of **Font type and size** (Appropriate font type and size)

    **5   4   3   2   1**

12. The importance of **Well-organized** (Well-organized and structured)

    **5   4   3   2   1**

13. The importance of **Visual Presentation** (Presence of text boldfacing, italicizing, and under-lining)

    **5   4   3   2   1**

14. The importance of **Recognition** (Being able to quickly recognize the key points)

    **5   4   3   2   1**

15. The importance of **Information relevancy** (Relevant information)

    **5   4   3   2   1**

16. The importance of **Right to the point information** (brief, short, and right to the point infor-mation)

    **5   4   3   2   1**

17. The importance of **Consistency** (consistency of appearance, terms, words, actions)

    **5   4   3   2   1**

18. The importance of **Feedback** (Providing feedback to users)

    **5   4   3   2   1**

19. The importance of **Direction** (Providing direction to users)

    **5   4   3   2   1**

**Appendix B. Part of Harley et al.'s (2006) instrument (sections 10-16 - 10-18).**
Drawn from Harley, D. et al. (2006). Use and Users of Digital Resources: A Focus on Undergraduate Education in the Humanities and Social Sciences. Center for Studies in Higher Education.

# Barriers and Frustrations

This next section deals with barriers or obstacles that make it difficult for you to use digital resources the way you would like.

16. How much do you agree or disagree with the following statements?

| | Strongly agree that it is a barrier for me | Somewhat agree that it is a barrier for me | Somewhat disagree that it is a barrier for me | Strongly disagree that it is a barrier for me |
|---|---|---|---|---|
| I have difficulty using digital resources the way I would like, because there are too many resources out there for me to take advantage of — I am overwhelmed. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because I don't know how to locate the online materials I need. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because search engines provide irrelevant results for my needs. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because the content I need or want is just not available online. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because the academic quality of available materials is too poor to meet my needs. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because the digital resources are distributed in so many places that it is difficult for me to organize them for use in my teaching. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because web sites I would use are unreliable, and I can't count on them being there when I need them. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because I don't have time to assess the credibility of the available resources. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because I have difficulty understanding the issues surrounding copyright and digital collections. | ❏ | ❏ | ❏ | ❏ |

This section deals with technological obstacles that make it difficult for you to use digital resources the way you would like.

17. How much do you agree or disagree with the following statements?

| | Strongly agree that it is a barrier for me | Somewhat agree that it is a barrier for me | Somewhat disagree that it is a barrier for me | Strongly disagree that it is a barrier for me |
|---|---|---|---|---|
| I have difficulty using digital resources the way I would like, because available software is unsuitable for viewing and displaying digital images. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because available software is unsuitable for integrating audio or video into my course. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because my students don't have reliable access to computers. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because my students don't have a high-speed connection. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because I don't have reliable access to a computer. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because I don't have reliable access to a high-speed connection. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because I don't have reliable access to physical resources in my classroom(s) (e.g., projectors, high-speed connections, etc.). | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because it is difficult to get server space or access to a server in order to store/host digital resources for teaching. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because I don't have reliable access to scanners. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because course management software packages (e.g., WebCT, Blackboard) are inadequate for my needs. | ❏ | ❏ | ❏ | ❏ |
| I have difficulty using digital resources the way I would like, because I don't know how to save presentations to my computer so they can be run without a live connection. | ❏ | ❏ | ❏ | ❏ |

**Appendix C: The survey questions used in this study.**
Questions were presented via a several-page web interface using SurveyGizmo.

**1. Are you a current University of Michigan M.S.I. student? (You must be in order to take part in this study. Your M.S.I. student status will be verified using your University of Michigan email address before you can receive the reward for participation.)**
> Yes.
> Oops! No.

**2. Please enter your University of Michigan email address (do not enter any other email address). This will be used to send you your participation reward and verify your UM M.S.I. program status, so please double-check that it is entered correctly.**

**3. How many years of experience do you have using the Internet?**

**4. For the purposes of this survey, the term "digital text" encompasses any online learning or academic research site that is similar to the following examples:**
- **an electronic edition,**
- **a digital archive or special library collection,**
- **a website focusing on annotated texts and/or images**

**On the following scale, please indicate your degree of experience with digital texts:**
> None
> Briefly used
> Use occasionally
> Use frequently
> Use frequently and have participated in the development of a digital text
> Use frequently and have based doctoral-level (or higher) academic work on digital text use

**5. Please indicate which of the following digital text types and examples you've a) heard of or seen and b) used:**
> Kindle/other e-reader
> Project Gutenberg or other straight digitized texts
> The *Walt Whitman Archive*
> The *William Blake Archive*
> Other (please indicate what in next question)
> None

**6. If you answered "other" in the previous question (question #3), please elaborate.**

**7. Why did you work with these digital texts? (Select all that apply.)**
> Work
> School (post-college)
> School (college or earlier)
> Self-motivated learning
> Other reason

Have not worked with a digital text

**8. Have you previously heard about or used either the *Walt Whitman Archive* or the *William Blake Archive*?**
Heard about
Used
Neither
*Walt Whitman Archive*
*William Blake Archive*

**9. If you possess beyond-average knowledge of Walt Whitman and/or William Blake, please describe this briefly (e.g. studied Blake as an English major in college).**

**10. Please rate the following descriptions of the digital text(s) you looked at for this survey.**
**5 (Strongly Agree)**
**4**
**3 (Neutral)**
**2**
**1 (Strongly Disagree)**

The site(s) fit my Blake and/or Whitman learning questions
The site(s) presented enough information
It was easy to locate specific information
The site(s) made me interested in new things
The site(s) were easy to read

**11. The following questions are about features of digital texts. An example of a "feature" is the Blake Archive's image comparison tool. Please list several specific features of the digital texts you used; for each feature, please say why you used it.**

**12. What technical or design features of the digital text would you like to see changed or added in order to help you learn better?**

**13. Please list several ways you can see a digital text helping you learn or do research (e.g. locating primary sources for a school assignment).**

**14. If there were times when you felt like you weren't getting the information you wanted from the digital text, how did you respond?**

**15. When you looked at the digital text, what questions were you trying to answer? What did you hope to learn?**

**16. Did you feel like you were successful at reaching your learning goals? (Or could you be, with more time?)**
Yes
No

**17. If you felt unsuccessful in achieving your learning goals, why do you think this happened?**
   Lack of necessary information
   Difficulty understanding what the site offered
   Trouble with site features (e.g. navigation)
   Wasn't sure what I wanted to learn
   Other

**18. Please rate how well the following statements about digital texts are true for you.**
   **5 (Strongly Agree)**
   **4**
   **3 (Neutral)**
   **2**
   **1 (Strongly Disagree)**

   I find digital texts too overwhelming (too many resources are out there)
   I find digital texts too underwhelming (not enough resources that match my interests exist)
   The academic content of digital texts is generally of decent quality
   Digital texts don't work for me because they involve too much reading on a computer screen
   I don't have access to a computer/Internet with the ability to accurately render digital text multimedia

**19. If you were trying to learn or research a topic covered by a digital text such as the Walt Whitman or William Blake Archive, would you use such a digital text to help you?**
   Yes, in preference to a traditional resource
   Yes, in combination with a traditional resource
   No

**20. If you answered no to the previous question, what changes might make you use a digital text? Please consider improvements to digital texts as well as improvements to your familiarity with digital texts and the Internet that might make your digital text experience a better one.**

**21. Do you think digital texts could help you learn or do research in ways traditional resources cannot?**
   Yes
   No

**22. Why do you feel this way?**

**23. How much time did you actually spend with the Walt Whitman and/or William Blake archives for this study? (Please answer truthfully — this helps us evaluate your other**

**responses. You'll receive the $10 participation reward regardless of the length of time you spent with the digital text[s].)**

**Appendix D: One-way ANOVAs of Internet experience versus scaled-response answers.**

**ANOVA**

| | | Sum of Squares | df | Mean Square |
|---|---|---|---|---|
| The site(s) fit my Blake and/or Whitman learning questions | Between Groups | 8.160 | 11 | .742 |
| | Within Groups | 9.440 | 23 | .410 |
| | Total | 17.600 | 34 | |
| The site(s) presented enough information | Between Groups | 5.781 | 11 | .526 |
| | Within Groups | 17.190 | 23 | .747 |
| | Total | 22.971 | 34 | |
| It was easy to locate specific information | Between Groups | 19.231 | 11 | 1.748 |
| | Within Groups | 22.940 | 23 | .997 |
| | Total | 42.171 | 34 | |
| The site(s) made me interested in new things | Between Groups | 8.686 | 11 | .790 |
| | Within Groups | 32.857 | 23 | 1.429 |
| | Total | 41.543 | 34 | |
| The site(s) were easy to read | Between Groups | 14.810 | 11 | 1.346 |
| | Within Groups | 35.362 | 23 | 1.537 |
| | Total | 50.171 | 34 | |
| I find digital texts too overwhelming (too many resources are out there) | Between Groups | 15.457 | 11 | 1.405 |
| | Within Groups | 24.714 | 23 | 1.075 |
| | Total | 40.171 | 34 | |
| I find digital texts too underwhelming (not enough resources that match my interests exist) | Between Groups | 9.438 | 11 | .858 |
| | Within Groups | 14.733 | 23 | .641 |
| | Total | 24.171 | 34 | |
| The academic content of digital texts is generally of decent quality | Between Groups | 3.081 | 11 | .280 |
| | Within Groups | 16.062 | 23 | .698 |
| | Total | 19.143 | 34 | |
| Digital texts don't work for me because they involve too much reading on a computer screen | Between Groups | 18.029 | 11 | 1.639 |
| | Within Groups | 37.857 | 23 | 1.646 |
| | Total | 55.886 | 34 | |

| I don't have access to a computer/Internet with the ability to accurately render digital text multimedia | | | | |
|---|---|---|---|---|
| | Between Groups | 8.202 | 11 | .746 |
| | Within Groups | 6.940 | 23 | .302 |
| | Total | 15.143 | 34 | |

**ANOVA**

| | | F | Sig. |
|---|---|---|---|
| The site(s) fit my Blake and/or Whitman learning questions | Between Groups | 1.807 | .112 |
| | Within Groups | | |
| | Total | | |
| The site(s) presented enough information | Between Groups | .703 | .723 |
| | Within Groups | | |
| | Total | | |
| It was easy to locate specific information | Between Groups | 1.753 | .124 |
| | Within Groups | | |
| | Total | | |
| The site(s) made me interested in new things | Between Groups | .553 | .846 |
| | Within Groups | | |
| | Total | | |
| The site(s) were easy to read | Between Groups | .876 | .575 |
| | Within Groups | | |
| | Total | | |
| I find digital texts too overwhelming (too many resources are out there) | Between Groups | 1.308 | .281 |
| | Within Groups | | |
| | Total | | |
| I find digital texts too underwhelming (not enough resources that match my interests exist) | Between Groups | 1.339 | .266 |
| | Within Groups | | |
| | Total | | |
| The academic content of digital texts is generally of decent quality | Between Groups | .401 | .941 |
| | Within Groups | | |
| | Total | | |
| Digital texts don't work for me | Between Groups | .996 | .479 |

| | | | |
|---|---|---|---|
| | Within Groups | | |
| | Total | | |
| I don't have access to a computer/Internet with the ability to accurately render digital text multimedia | Between Groups | 2.471 | .032 |
| | Within Groups | | |
| | Total | | |

**Appendix E: One-way ANOVAs of digital text experience versus scaled-response answers.**

**ANOVA**

|  |  | Sum of Squares | df | Mean Square |
|---|---|---|---|---|
| The site(s) fit my Blake and/or Whitman learning questions | Between Groups | 1.121 | 3 | .374 |
|  | Within Groups | 16.479 | 31 | .532 |
|  | Total | 17.600 | 34 |  |
| The site(s) presented enough information | Between Groups | 2.867 | 3 | .956 |
|  | Within Groups | 20.104 | 31 | .649 |
|  | Total | 22.971 | 34 |  |
| It was easy to locate specific information | Between Groups | 5.317 | 3 | 1.772 |
|  | Within Groups | 36.854 | 31 | 1.189 |
|  | Total | 42.171 | 34 |  |
| The site(s) made me interested in new things | Between Groups | .939 | 3 | .313 |
|  | Within Groups | 40.604 | 31 | 1.310 |
|  | Total | 41.543 | 34 |  |
| The site(s) were easy to read | Between Groups | 4.359 | 3 | 1.453 |
|  | Within Groups | 45.813 | 31 | 1.478 |
|  | Total | 50.171 | 34 |  |
| I find digital texts too overwhelming (too many resources are out there) | Between Groups | 1.296 | 3 | .432 |
|  | Within Groups | 38.875 | 31 | 1.254 |
|  | Total | 40.171 | 34 |  |
| I find digital texts too underwhelming (not enough resources that match my interests exist) | Between Groups | 2.234 | 3 | .745 |
|  | Within Groups | 21.938 | 31 | .708 |
|  | Total | 24.171 | 34 |  |
| The academic content of digital texts is generally of decent quality | Between Groups | 1.351 | 3 | .450 |
|  | Within Groups | 17.792 | 31 | .574 |
|  | Total | 19.143 | 34 |  |
| Digital texts don't work for me because they involve too much reading on a computer screen | Between Groups | 3.094 | 3 | 1.031 |
|  | Within Groups | 52.792 | 31 | 1.703 |
|  | Total | 55.886 | 34 |  |
| I don't have access to a | Between Groups | .789 | 3 | .263 |

| | | 14.354 | 31 | .463 |
|---|---|---|---|---|
| | Within Groups | 14.354 | 31 | .463 |
| | Total | 15.143 | 34 | |

**ANOVA**

| | | F | Sig. |
|---|---|---|---|
| The site(s) fit my Blake and/or Whitman learning questions | Between Groups | .703 | .558 |
| | Within Groups | | |
| | Total | | |
| The site(s) presented enough information | Between Groups | 1.474 | .241 |
| | Within Groups | | |
| | Total | | |
| It was easy to locate specific information | Between Groups | 1.491 | .236 |
| | Within Groups | | |
| | Total | | |
| The site(s) made me interested in new things | Between Groups | .239 | .869 |
| | Within Groups | | |
| | Total | | |
| The site(s) were easy to read | Between Groups | .983 | .413 |
| | Within Groups | | |
| | Total | | |
| I find digital texts too overwhelming (too many resources are out there) | Between Groups | .345 | .793 |
| | Within Groups | | |
| | Total | | |
| I find digital texts too underwhelming (not enough resources that match my interests exist) | Between Groups | 1.052 | .383 |
| | Within Groups | | |
| | Total | | |
| The academic content of digital texts is generally of decent quality | Between Groups | .785 | .512 |
| | Within Groups | | |
| | Total | | |
| Digital texts don't work for me because they involve too | Between Groups | .606 | .616 |
| | Within Groups | | |

| | | | |
|---|---|---|---|
| | Total | | |
| I don't have access to a computer/Internet with the ability to accurately render digital text multimedia | Between Groups | .568 | .640 |
| | Within Groups | | |
| | Total | | |

**Appendix F: Chi-squared test of digital text experience versus perception of success with digital text learning.**

| | | Did you feel like you were successful at reaching your learning goals? (Or could you be, with more time?) | | Total |
|---|---|---|---|---|
| | | *No* | *Yes* | |
| **Experience with digital texts** | Briefly used | 0 | 3 | 3 |
| | Use occasionally | 2 | 6 | 8 |
| | Use frequently | 3 | 13 | 16 |
| | Use frequently and have participated in the development of a digital text | 1 | 7 | 8 |
| **Total** | | 6 | 29 | 35 |

*Above:* Cross-tabulation of respondent experience with digital texts and perception of success at reaching learning goals via digital texts.

*Below:* Results of the chi-squared test.

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | **1.119\*** | 3 | .773 |
| Likelihood Ratio | 1.602 | 3 | .659 |
| N of Valid Cases | 35 | | |

\* 5 cells (62.5%) have expected count less than 5. The minimum expected count is .51.