

Diary Weblogs as Genre

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Qualifying Paper submitted to the faculty of the
School of Library and Information Science
in partial fulfillment of the requirements
for the degree
Doctor of Philosophy
Indiana University
May 2009

Abstract

The word weblog (blog) has been a term of art, rather than of precision, since it was first used in 1997. More recently, scholars have characterized the weblog as a new genre of communication, based on the instrumentality/affordances of blogging software and the themes found in weblog posts (Miller & Shepherd, 2004). The personal journal or diary weblog, a subgenre of weblogs, can be seen as an adaptation of its paper diary predecessors. That is, it is usually written by a single author (Fothergill, 1974) using first person narrative (McNeill, 2003), and it tells a fragmentary (Hogan, 1991) episodic story (Walker, 2005), which continues until the author makes no more entries (Bunkers, 2001). Diary weblogs are, in short, in-process documents (Culley, 1985).

Weblogs are of scholarly interest for several reasons. First, they combine the characteristics of their paper predecessors--diaries, broadsheets, commonplace books, photo albums, essays, etc.--with the hypertextual characteristics of the web (Crowston & Williams, 2000), including hyperlinks and persistent location. These characteristics, along with the public nature of weblogs (Lasica, 2001) and the transmutable nature of online text (Yates & Sumner, 1997), transcend the paper format and expand it into new structures. The purpose of this literature review is to explore how researchers have constructed the genre and subgenres of single-author diary weblogs within their research and to situate these forms in relation to established genres of paper diaries.

Personal narration is a common use of multimedia, as well as textual, weblog formats. By including and discussing multimedia blogs under the rubric of diary weblogs, this paper provides a broad classification and synthesis of the full range of diary blogging technologies currently in use. Next, research utilizing genre theory is situated within Information Science focusing on Human-Computer Interaction. Following the literature review, the methodologies used most

commonly in diary weblog research are discussed and critiqued; ethical issues associated with researching diary blogs are raised; and questions are articulated for future research.

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1. Introduction

The diary is an art form just as much as the novel or the play. The diary simply requires a greater canvas. Henry Miller (1891-1980)

I do not know but thoughts written down thus in a journal might be printed in the same form with greater advantage than if the related ones were brought together into separate essays. They are now allied to life, and are seen by the reader not to be far-fetched. It is more simple, less artful. I feel that in the other case I should have no proper frame for my sketches. Mere facts and names and dates communicate more than we suspect.... Perhaps I can never find so good a setting for my thoughts as I shall thus have taken them out of. The crystal never sparkles more brightly than in the cavern. Henry David Thoreau (1817-1862)

In December 2004, Merriam-Webster (2004) declared *blog* to be their word of the year, a signifier that the term had become part of the popular lexicon.¹ At that time, there were already over four million weblogs (aka blogs) available online (Sifry, 2004), and weblog creation was increasing so rapidly that *Technorati* (<http://technorati.com/>)—the major weblog search and ranking service—reported tracking one million more blogs than in September 2004, just three months earlier (Sifry, 2004). As of October 2008, *Technorati* claims to have tracked 133 million weblogs since its inception in 2002 (*Technorati*, 2008), an 85% increase in 18 months (Sifry, 2007). *Technorati*'s count is slightly higher than Daryl Plummer, a *Gartner Consulting* (<http://www.gartner.com/>) Analyst, estimated to be the peak blogging saturation of 100 million weblogs by the end of 2007 (*BBC News*, 2006). While the law of large numbers is clearly affecting overall growth—it takes far longer to double 100 million than for 100,000 to double to 200,000—new blogs are still being created and added to the pantheon of world-wide weblogs known as the *blogosphere* (Graham, 1999). Weblog have become an online staple in a very short time, as the addition of terms related to this online form have become parts of everyday speech and as the rapid increase in weblog webpages illustrates.

Weblogs are as diverse as the people who take the time to author them (*Technorati*, n.d.). *Technorati* tracks regularly updated online journals whose audiences range from one (i.e., the weblogger alone) to, potentially, everyone with access to the web. Blog content can be personal or



Figure 1. *A Mommy Diary* (<http://amommydiary.wordpress.com/>), an example of a weblog.

externally-oriented; sometimes it is both. Weblogs reflect the topics of interest to their writers and reflect the writers' opinions. *A Mommy Diary*, shown in Figure 1, is an example of a typical weblog that may be tracked by *Technorati*.

Weblogs are of scholarly interest for several reasons. First, they combine the characteristics of their paper predecessors—diaries, broadsheets, commonplace books, photo albums, essays, etc.—with the hypertextual characteristics of the web (Crowston & Williams, 2000), including hyperlinks (links) and persistent location. These characteristics, along with the public nature of weblogs (Lasica, 2001) and the transmutable nature of online text (Yates & Sumner, 1997), transcend the paper format and expand it into new structures.

Moreover, by virtue of their public accessibility, weblogs have become a major source of information that has spread across the web (Adar, Zhang, Adamic, & Lukose, 2004) and thus around the globe. They act both as news sources (Ashbee, 2003) and repositories of personal accounts of news-making events (e.g., Kaiser, 2007).

These personal accounts, which often appear on so-called diary weblogs, take the basic form of their paper diary predecessors. That is, they are usually written by a single author

(Fothergill, 1974) using first person narrative (McNeill, 2003), and they tell a fragmentary (Hogan, 1991) episodic story (Walker, 2005), which continues until the author makes no more entries (Bunkers, 2001). They are, in short, in-process documents (Culley, 1985).

Diaries, both paper and digital, provide unique insight into the lives of their writers (Tremayne, 2007), lives that can be very different from our own or similar in unexpected ways. In Charlotte Forten's diary (2000), for example, we are shown the daily life of a free black girl living in the pre-civil war south. In Lena Jedwab Rozenberg's diary (2004), we can read a young Russian woman's personal account of coming of age as a Jewish prisoner during World War II. In Rosewald's study of Ralph Waldo Emerson's diaries (1988), we gain new insights into the mind of a writer whose published essays were the polished outcome of the thoughts he captured first in his personal journals. *The Diary of Samuel Pepys*, an English naval administrator and later a Member of Parliament, was first published in the 19th century and is now considered an important primary source for information on the English Restoration period (Fothergill, 1974).

In particular, the study of diary weblogs is important because these websites present the dual perspective and complexities of studying both a digital artifact and a digital text. These digital peepholes into the lives of ordinary people are forcing us to "...reconceptualiz[e] the diary and the act of diary keeping" (Bunkers, 2001, p. 27). Likewise the nature of the specific materials that make up diary weblog entries—the text, photographs, audio, and video, as well as the design elements—have become fodder for citation in all forms of communication, from *The New York Times* (<http://www.nytimes.com/>), whose technology section routinely lists stories taken from weblogs, including diary entries, to *The Library of Congress* which, through their Digital Preservation Project, is tasked with "provid[ing] a record for history...being created only in digital form" (*Library of Congress*, n.d.), including diary weblogs. Specifically, many such

personal websites, including diary weblogs, have been archived as part of their collections surrounding 9/11 and Hurricane Katrina. Yet while diary weblogs are being mined for news material and archived for posterity, we are only beginning to study them from either the digital artifact or the digital text perspective, and very little academic research has been done that blends these two components of the genre.

Herring (2004) discusses the convergence of computer-mediated communication (CMC) on the internet in the sense that communication technologies are merging and reforming into new configurations at the same time that the concept of communication online is becoming ordinary and routine. The convergence of which she writes has overtaken weblogs as well, in that weblog features can now be found in a variety of social networking/utility sites, such as *Facebook* and *MySpace*. These social networking sites are complex suites of features, which scholars are beginning to study. This review looks at weblogs as an independent venue, although some of the same features that are found in social networking sites will be discussed here but only as to their relevance to weblogs as the primary activity of the site.

The process of explaining both of these primary components—artifact and text—has been and is iterative, and like the diaries it studies, the whole of the work is fractured and partial. Therefore, the purpose of this literature review is to explore how researchers have constructed the genre and subgenres of single-author diary weblogs within their research and to compare these formats to established genres of paper diaries.

The organization of this paper is as follows. I first describe and situate definitions of what constitutes a weblog, and then briefly survey the history of weblogs and diary weblogs, touching upon elements of their pre-digital and digital developments. In subsequent sections, I discuss selected literature related to genre and the genre and subgenres of diary weblogs. After reviewing

discussions of genre characteristics of diary weblogs and the methodologies used in the studies, I consider studies based on the characteristics of the writer/producer, and then move to studies that focus on the technological affordances of multimedia weblogs—that are being used to document the lives of diary bloggers.

Following the discussion of the literature, I identify issues remaining to be resolved in research on diary weblogging and areas in need of further research, as well as methodologies and challenges in conducting diary weblog research.

2. Background

2.1 Weblog Definitions

The word *weblog* has been a term of art, rather than of precision, for most of the technology's existence. As Jeremy Zawodny of *Yahoo!* (<http://www.yahoo.com>) said in an interview with the *Economist* magazine, "If you want to have a fun debate, ask a blogger what a blog is" (*Economist*, 2006). While the dust has yet to settle from the debates to which Zawodny referred, current definitions of the term have predominantly fallen into two broad categories: those that characterize blogs in terms of the website's instrumentality/affordances and those that characterize blogs in terms of the themes found in weblog posts.

Instrumentality/affordances-based definitions have required that entries are - dated (*Whatis.com*, 2003; Herring, Scheidt, Bonus, & Wright, 2004), linked to sources off-site (Andrejevic, 2003; Blood, 2000; Moeller & Rupp, 2005; Mortensen & Walker, 2002; *Whatis.com*, 2003), arranged in reverse chronological order (Coggins, n.d.; Kumar, Novak, Raghavan, & Tompkins, 2003; Herring, Scheidt et al., 2004), produced through the site owners HTML programming skill (Blood, 2000), frequently updated (Herring, Scheidt et al., 2004; Scheidt, 2006), or created using specialized weblogging software (December, n.d.) as precursors to calling the site a weblog.

Thematic-based definitions have included statements that weblog sites include posts written on topics similar to those found in a diary or a personal journal (*WebWordNet*, 2003; *Merriam-Webster*, 2004; December, n.d.; *Webopedia* 2007), or posts discussing politics (Hastings, n.d.).

In her entry to the *Encyclopedia of Narrative Theory* (Herman, Jahn, & Ryan, 2005), Walker pulled these two threads together for her definition of weblogs:

A weblog, or blog, is a frequently updated website consisting of dated entries arranged in reverse chronological order so the most recent post appears first. Typically, weblogs are published by individuals and their style is personal and informal.... Examples of genre exist on a continuum from confessional online diaries to logs tracking specific topics or activities through links and commentary (Walker, 2003).

Walker's definition draws on earlier work by Herring, Scheidt et al. (2004), who analyzed the manifest content of weblogs, and Nardi, Schiano, and Gumbrecht (2004), who analyzed people's motivations for blogging. This blended definition forms the foundation for the work in this paper.

2.2 History of Weblogs

Weblogs can trace their origins back to the early days of computing, when computer operators kept log books "to record everything done to the system" (*Computer History Museum*, n.d.). By the time server operators on the world wide web became known as webmasters, they had appropriated the computer log concept for their own, coining the portmanteau term *web log* (Stone, 2004, p. 35). Later the term was co-opted to include referrer logs and the software used

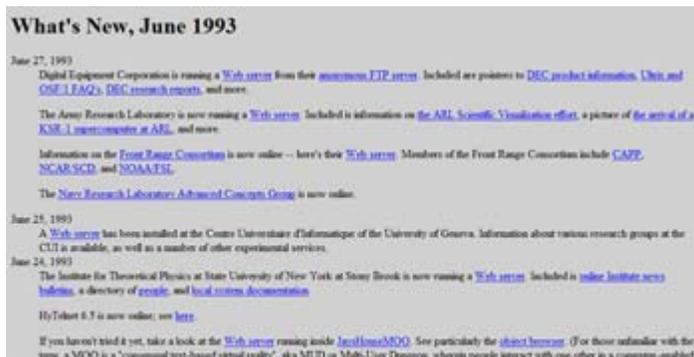


Figure 2. *What's New: June 1993* (http://www.dejavu.org/prep_whatnews.htm), an example of a proto-weblog

to mine information from various logs of website visitors and the pages they visit (e.g., Ezeife & Lu, 2005).

The first weblog is sometimes credited to Tim Berners-Lee (Winer, 2002), the father of the World Wide Web. Berners-Lee's *What's new in '92*

page and the similar National Center for Supercomputing Applications' (NCSA) *What's New*²

list in June 1993 (Figure 2) were both hand-coded HTML pages directing viewers to new sites on the web. Both websites exhibit some of the features that would eventually be claimed to be characteristics of the weblog genre, including dated entries in reverse chronological order, hyperlinks to sources outside the original site, and the author's brief comments on those sources.

The term *weblog* was first used in 1997 by Jorn Barger (*Wikipedia*, 2008a) to describe both his webpage *Robot Wisdom* (<http://www.robotwisdom.com/>) and the process of creating entries for the weblog (weblogging). *Weblog* and *blog* both gained traction after Peter Merholz added the term to the “For What It's Worth” sidebar section of his weblog *peterme* (<http://www.peterme.com>) (*Internet Archive*, 1999a). He stated, “I've decided to pronounce the word ‘weblog’ as wee'- blog. Or ‘blog’ for short” (Merholz, 1999). The *wee'- blog* pronunciation was continued in the titling of Bausch, Haughey, and Hourihan's book *We Blog* (2002), the first book published on the topic of weblogs, although the pronunciation has since fallen out of favor.

Early in 1999, Cameron Barrett (1999) added the intermediate term *WebLog*³ to his site *camworld*⁴. This usage harkens back to the earlier meaning of *web logs* as logs used by computer professionals to track computer system changes. At roughly the same time as Barrett posted his usage, the term was also applied to a World Wide Web query language (Kogan et al. 1998).

As the technology continues to mature, the structure of the referents is again changing, as can be seen in Savage's (2006) “internet web blogs.” This structure appears to position “blogs” as a form that transcends both the internet and the World Wide Web and which, therefore, must be anchored so the reader understands the location of the weblogs in question. While this construction may seem odd, there is some support for its premises. Weblogs are currently being used by corporations, within their intranets and away from the web, to capture and archive employee knowledge (Oravec, 2004). Likewise, weblogs have found a home in many university

classrooms, again often housed away from both the internet and the web, and sometimes available only to students and their instructors (Du & Wagner, 2005). Thus, blogs have, in a sense, moved beyond their internet origins, although the vast majority of blogs still reside on the public web.

The use of blogs was expanding from 1997 to 1999, but the technology gained a strong foothold on the internet after *LiveJournal.com* opened their diary weblog hosting site, and *Blogger* released its software and also opened a weblog hosting site, *Blogger.com*. *LiveJournal* (*LJ*) opened its electronic doors in March 1999 as a diary weblog hosting site (*LiveJournal.com*, 2005). *Blogger*, both the software and the weblog host, were released in August 1999 (*Blogger.com*, 2005). Unlike *LJ*, *Blogger.com* did not target its site toward a specific subgenre of weblogs although its initial release supported only written entries. Researchers have found that the majority of weblogs are hosted on public sites like these (Herring, Scheidt et al., 2004).

2.3 Genre Classification

Interest in genre identification can be traced back to the classical works of Aristotle (trans. 1961), which identified structural elements with a primary focus on the literary goals of the piece in question. Swales (1990) modernized the discussion when he wrote that the term *genre* is now “quite easily used to refer to a distinctive category of discourse of any type, spoken or written, with or without literary aspirations” (p. 33), while Frow (2005) further extends the applicability of genre analysis to speech, writing, film, music, and drama. In modern scholarship, *genres* are defined as classes of communication that typically possess features known to their users, common forms and purposes, and name recognition (Swales, 1990). Another often-cited definition is that of Miller (1984, p. 156), who characterizes genres “as typified rhetorical actions based in recurrent situations.”

Yates and Orlikowski (1992) draw on Miller's (1984) rhetorical definition and Giddens' (1984) structuration theory in proposing a concept of genres of organizational communication based on the "production, reproduction, and modification of different types of organizational communication over time and under different circumstances" (Yates & Orlikowski, 1992, p. 301). They invoke the concept of *genre rules* as the guiding force behind the generation of specific forms of communication. Genre rules may be embedded in a medium or technological format, such as preprinted employee rights posters or electronic templates such as the headings provided in email systems (Yates & Orlikowski, 1992, p. 303).

Yates and Orlikowski's (1992) observation that media may partially structure genres paved the way for research on digital genres. In an early attempt to characterize genres of web pages, Crowston and Williams (2000) introduced the concepts of reproduced, adapted, and emergent genres. A *reproduced* genre is one that has moved from its older format to be reproduced on the web in basically the same format; Crowston and Williams (2000) give the example of the academic article online as a reproduced genre. Online news sites are an example of a genre that carries over many conventions from offline print newspapers, but which has *adapted* to the affordances of the web, e.g., by offering polls, allowing reader comments on stories, and connecting information via links (Ihlström & Henfridsson, 2000). Finally, *emerging* genres, according to Crowston and Williams (2000), have no offline antecedents but appear for the first time on the web; examples given by the authors include hotlists of links, FAQs (Frequently Asked Questions pages), and personal homepages (on the genre characteristics of the latter, see also Dillon & Gushrowski, 2000).

Kwasnik and Crowston (2005) consider genres as clusters of characteristics that differentiate some forms from others and link them to those that are similar to them. Identifying

such clusters and automating their identification can aid in online text classification and retrieval, an important area of research in Information Science (IS). At the same time, genre classification has two primary limitations. First, because the analysis relies on the repetition of characteristics in typifying a genre, too much emphasis can be placed on similarities at the expense of differences (Frow, 2005). Second, because of the fluid nature of genres, which are always evolving (Yates & Orlikowski, 1992) and emerging (Crowston & Williams, 2000), it is impossible to typify all possible combinations of characteristics (Kwasnik & Crowston, 2005).

2.3.1 Alternatives to Genre Classification

Alternatives have also been proposed to genre classification. Yoshika, Herman, Yates, and Orlikowski (2001) outline a potential taxonomy of organizational communications that pivots on their *5W1H dimensions*: why (the purpose of the item), what (contents are present in the document), when (the timing of both its production and distribution), where (where was the document produced and where was it published), who (the writers and readers of the document, among others who may access or utilize it in some way), and how (the structure and medium of the communication). Rather than being a true taxonomy, the 5W1H dimensions lay out the broad basis of the questions that must be answered in analyzing the genre of a document.

Herring (2007) carries this line of structured questioning forward in her proposal that faceted classification be used to classify computer-mediated communication (CMC) such as weblogs. She argues that since faceted classification “does not rely on pre-existing modes,” it can be used to complement genre analysis and to offset some of its limitations when applied to emerging and innovative forms (2007, section 1.1). Herring (2007) proposes a scheme of 10 medium factors and eight situation factors that are subdivided into more specific factors. Among the eight situation factors are *participation structure*, which elicits information related to the size

of the group accessing the digital document, and *participant characteristics*, including the demographics of the producer(s) and the consumer(s), the ability for those outside the primary audience to access the message(s), and elements describing the level of audience participation in receiving the messages.

Herring (2007, section 5) illustrates the proposed scheme by applying it to differentiate two formats of diary weblog, one publicly-available on *LJ* and the other from a closed-access educational site for 9-12 year olds, *Quest Atlantis (QA)*. The *LJ* diary weblog was written by an English-speaking young woman, while the *QA* example is a fictional blog written by an adult writing as an Atlantian girl. The faceted classification scheme revealed commonalities and differences between the two sites. Similarities included archiving of messages, posts displayed in reverse chronological order, and asynchronicity. Differences between the two sites included public/private availability; anonymity—which is possible in *LJ*, but not in *QA*; and author experience level—the adult *LJ* diarist posted about her everyday life, sometimes using profanity, while the *QA* fictional child writer maintained topics appropriate for the educational venue (Herring, 2007, section 5). One difference that was not coded in the article's comparison is the distinction between a fictional first-person narrator in the *QA* weblog and the (apparently) real person writing the *LJ*, although it appears that could be included as a new facet of *participant characteristics*.

Both of these schemes—Yoshika et al. (2001) and Herring (2007)— provide viable frameworks for classifying digital documents into loosely-bounded clusters for ease of understanding and reproduction, for communicating about the document, and for further study. Likewise, these approaches are not mutually exclusive; both utilize the same underlying goals of

describing the important structural, communicative, and thematic elements of a given document or cluster of documents.

Diary weblogs bear the markings of an adapted digital genre (Crowston & Williams, 2000). They often share common design features and topics with their predecessors—the paper diary or personal journal—yet manifest a “fusion of content, purpose, and form of communicative actions” (Kwasnik & Crowston, 2005) that makes it possible to describe them as a new digital genre—a specialized form of communication that is understood and used by its users (Yates & Orlikowski, 1992).

The study of new and emerging genres, as informed by genre theory, is important to our understanding of documents themselves and of those who create them and use them, as well as to the development of electronic systems to produce, store, and retrieve them. As Miller stated in reference to the widespread use of digital technologies, the study of genre is valuable “because it emphasizes some social and historical aspects” of these technologies that other perspectives do not (1984, p. 154).

2.4 Weblogs and Genre

The weblog was first characterized as a genre in two studies published in 2004. Expanding Miller’s (1984) work to weblogs, Miller and Shepherd (2004) described the blog “as a genre that addresses a timeless rhetorical exigence in ways that are specific to its time” (Miller & Shepherd, 2004, n.p.). They trace its roots to a diverse set of paper forms, including log books used in navigation, clipping services—businesses that would scan newspapers and cut out stories relevant to their customers, the commonplace book—notebooks that were kept to gather quotations found while reading or overheard, and the editorial, as well as the paper diary. More

recent innovations such as webpages and cam sites are included as predecessors to weblogs (Miller & Shepherd, 2004).

Herring, Scheidt et al. (2004) observed that “weblogs are a good *prima facie* candidate for genre status” based, in part, on the cultural acceptance of the terms *weblog* and *blog*. Bloggers such as Blood (2002) and Winer (2002) had earlier proclaimed weblogs to be a new digital phenomenon without non-digital antecedents; this seems to suggest that blogs are an emergent genre, in Crowston and Williams’s (2000) sense. However, Herring, Scheidt et al. (2004) argue against this view, based in part on their examination of 203 randomly-selected blogs. First, they point out that weblogs are not primarily lists of links as Blood and Winer assert; rather, the most common weblogs in their data set were personal journals, most of which contained few links. Second, both journal and externally-focused “filter” blogs have offline predecessors, such as hand-written diaries and letters to the editor. Finally, weblogs share many characteristics with personal webpages. The researchers conclude:

Taken together, these observations lead us to propose that blogs, rather than deriving from a single source, are in fact a *hybrid* of existing genres, rendered unique by the combination of features of the source genres they adapt, and by their distinctive technical affordances. (Herring, Scheidt et al., 2004, n.p., emphasis in original)

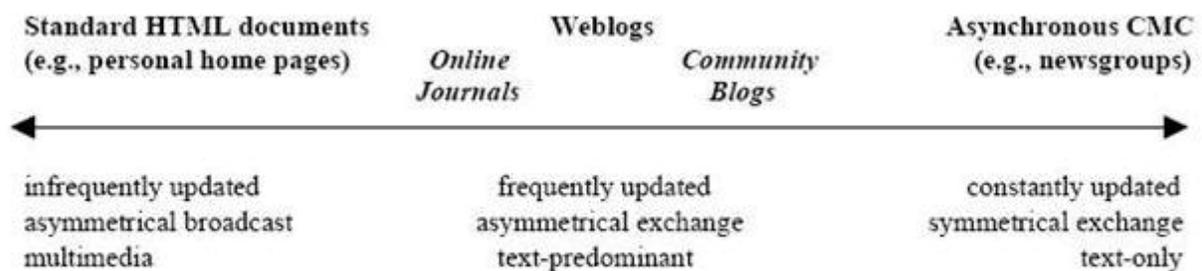


Figure 3. Weblogs on a continuum between standard HTML documents and CMC (Herring, Scheidt et al., 2004)

Another sense in which weblogs exhibit hybridity, according to Herring, Scheidt et al. (2004), is that they bridge structurally and functionally between standard HTML documents, such as personal home pages, and interactive computer-mediated communication, such as newsgroups; characteristics of each can be found in blogs (Figure 3).

In the end, while considering weblogs to be a genre at the time they conducted their study in 2003, Herring, Scheidt et al. (2004) predicted that the uses of blogs will diversify to such an extent that the weblog will become a “socio-technical format... whose convenience and general utility support a variety of uses.” At that time, it may “no longer be meaningful to speak of blogs as a single genre” (p. 164).

2.5 Diary Weblogs

Blood (2002) was one of the first to identify types of weblogs. She described three subgenres: *filters*—written on any topic that is externally focused, away from the writer; *personal journals*—internally focused on the writer and his or her thoughts and feelings; and *notebooks*—written on any topic either internally or externally focused and characterized by the essay-like length of the written work. These three categories formed the basis of Herring, Scheidt et al.’s (2004) classification of weblog genres. However, while Blood proposed notebook entries as a separate category, Herring, Scheidt et al. found no support in their random sample of blogs for making that distinction. They did find support for a third type: the *k-log*, or *knowledge log* (Röll, 2003), which is focused on a single topic external to the speaker, such as a research project or computer technology. However, the vast majority (70%) of the weblogs in their random sample were personal journals.

The definition of a personal journal (aka diary weblog) begins with the concept that the written entries explore terrain internal and personal to the writer—his emotions, her point of

view, their descriptions of what happened in their lives today—what Fothergill (1974) termed the “‘personal diary,’ ...whose prime subject is the life of the writer, valued for its own sake” (p. 3). That is not to say that diaries must only tell the story of their author, as there is a long history of family diaries (Bunkers, 2001), which may have been maintained by one writer or many, but which tells a single story—that of the inner life of one family.

Based on these existing definitions, therefore, in this work, *diary weblogs* will be defined as websites which first meet the definition of a weblog proposed by Walker (2003) and whose posts explore their producer’s inner terrain and life as it is lived in the first person. It should be noted that this definition does not limit these explorations to the written word; rather—as the literature will show—online personal explorations are limited only by the availability of technology and the producers’ ability to wield the technologies as they describe and document their lives.

Carolyn L. Burke⁵ has been credited with having made the first online diary entry on January 3, 1995⁶ (Sorapure, 2003). An entry from her diary is shown in Figure 4. The *diarist.net*



Figure 4. An early online diary
(<http://www.mamohanraj.com/Diary/dec95.html>)

site states that Burke, along with Justin Hall (whose *Justin's Home Page* which later became *Links from the Underground*),⁷ were mixing personal content and commentary on other websites by late 1994 (Ozawa, 2001).

Both of these websites illustrate the transitory nature of the internet, the materials created for it and residing therein. In Burke’s case, the original site was long since subsumed by a series of collocated webpages, one of which serves as a personal archive of her earlier diary. For Hall,

neither of his named sites are currently available online as stand-alone sites; rather, *Links from the Underground*, which has been offline since May 2008 (Wikipedia, 2008b), is only available through the *Internet Archive* (<http://www.archive.org/index.php>), and it appears to be archived only for the final day of its existence.

It should be noted that neither Burke nor Hall set out to become an online diarist in the purest sense of the term. Rather, both used their pre-existing sites to link to and comment on other online materials (similar to Figure 1); their development as diarists came over time. Burke appeared to begin with a linking and commentary site (i.e., a filter weblog; Herring, Scheidt et al. 2004), transitioning to a site with a mixture of internal and external foci, then expanding into a suite of sites under the umbrella *Beyond Carolyn's Diary* (<http://diary.carolyn.org/>), which included *Carolyn's Diary Museum*, as well as links to sites related to her first novel.

The thread of Hall's transition is more difficult to follow due to the profound differences between his most recent site and the discourse surrounding his early diary weblog entries. As of early 2008, Hall clearly preferred the linking format of the filter weblog: The archived version of his site's main page contains 15 hyperlinks but only a sparse 108 words. However, others who had access to Hall's earlier work have linked his diary entries to the development of the form (Riley, 2005; Scholz, 2007), including in interviews with Hall in *Home Page* (<http://old.d-word.com/homepage/>), a documentary detailing the development of weblogs and which premiered at the 1999 Sundance and Rotterdam film festivals (Block, 2001). In a 2005 *San Francisco Chronicle* article, Hall's entries are described as having been intensely personal; topics included his romantic life, his father's suicide, and his personal illnesses (Haramanci, 2005). It is understandable, yet unfortunate, that Hall's earlier work is no longer archived online.

Blood (2000) traced different evolutionary paths for filter weblogs and online diaries. This distinction was also evident in the technologies themselves. For example, *LJ* chose to present itself as a diary-only site until late summer 2003, when the word *blog* was added to its main page (*Internet Archive*, 2003a). Since that time, it has advertised itself more broadly as a weblog site, without the earlier implied limitation on genre. Herring, Scheidt et al. (2004) identified their random blogs through *blo.gs* (<http://blo.gs/>), the then-major weblog tracking site, which as of spring 2003 did not track weblogs hosted by diary sites such as *DiaryLand* (<http://members.diaryland.com/edit/welcome.phtml>) or *LJ*. Only a few months later, when Herring, Kouper et al. (2004) collected data for a second study in September 2003, *blo.gs* had started to track *LJ*'s, and the two forms—(filter) weblogs and online diaries—had merged substantially. It is now common to find self-described blogs that include both types of entries.

3. Overview of Research on Diary Weblogs

3.1 Text-Based Diary Weblogs

The scholarly research selected for this review pertains primarily to studies of writers/producers of weblogs and diary weblogs. However, along with weblog producers, it would be a mistake not to mention the consumers of their work. Two distinct sets of consumers can be distinguished: the audience the producer has in mind as he or she blogs, and the actual audience who reads the blog. The first group is largely a projection that resides in the mind of the producer and is outside the scope of this review (see Scheidt, 2006 for a detailed discussion).

Academic study has just begun of the second group, actual readers of diary weblogs, moving the documents away from the venues of vanity press toward a vehicle to which active readers are drawn (McNeill, 2003). In her ethnographic research on why readers return to read the same diary weblog over time, Karlsson (2007) found that, like herself, the readers of the three diary weblogs in her study were drawn to the sites because of similarities between themselves and the authors—all of whom were female, of Chinese ancestry, and 25-35 years old. The young women who participated in Karlsson's survey had read at least one of the three diary weblogs on a nearly daily basis for up to three years and expected to stop reading the site only if the posting became infrequent (Karlsson, 2007). These findings are similar to McNeill's discussion of her own diary weblog reading behavior: "When I find a diary I like...I engage in a marathon reading session to get caught up, then frequent the site daily, anxious for new entries" (McNeill, 2003, p. 24).

Karlsson compares diary weblogs to soap operas on daytime television, a form that is also delivered in partial segments and which require long-term viewing to pull together the threads of the narrative (2007). Baym (2000), in her ethnographic study of an internet television

soap opera fan group, describes how *usenet* readers and writers perceive the serial form as similar to the structure of their real lives, with story lines playing out over months and years. Similarly, in describing paper diaries, Cully (1985) states that most diaries are “a series of surprises to writer and reader alike, one source of the immediacy of the genre” (p. 21). In these forms—soap operas and the online forums that discuss them, as well as both paper and weblog diaries—the readers/viewers find links to characters they care enough about to return to, day after day.

3.1.1 General Population

Two differing populations have been described in the literature on mostly text-based diary weblogs: a general user population characterized primarily by its use of the technology, and a more specific younger population described variously as children (Herring, Kouper et al. 2004), youth (Huffaker, 2004; Driver, 2006), adolescents (Scheidt, 2006; Vaisman, 2006), or teenagers (Bortree, 2005; Mazur, 2005), each label covering slightly different age ranges and overlaps the others to some extent, although they are all characterized primarily by their age demographic and secondarily by their usage of the technology. This review first investigates research that has studied the general population of weblog authors, focusing on three areas that have attracted particular research attention: the public vs. private nature of weblogs, interaction and connection via blogs, and the languages used in blogging. Then research that has focused on younger users, who are the most active diary bloggers worldwide, is reviewed.

3.1.1.1 Privacy

Scholars began studying diary weblogs around 2000, roughly five years into the development of the form. Lejeune (2000), a noted scholar of autobiography whose work is available in French, was one of the first scholars to discuss diary weblogs. Lejeune positions

diary weblogs as a tool for the author's wish fulfillment in gaining "access to an alter ego, a synthesis between the diary and the letter" that is well suited to the internet (quoted in Rak, 2005, p. 167). Rak characterizes Lejeune's comments on the alter ego not as a betrayal of the essentially private character of paper diaries, but rather as an acceptance of the diary's transition from one form to another—paper to electronic (2005).

Lejeune's comments stand in contrast to paper diary research, which has found that the modern popular belief that diaries are always written by one author in secret for him- or herself only is not borne out by historical fact. Bloom (1996) states that over time, diaries can become documents their authors have structured to be made public—now, by themselves, or later, by others. Bunkers (2001) describes the duality of the public and private nature of diaries, illustrated with examples from her research on the works of midwestern girls and women written since 1850. "Ada James shared her diary with her cousin Ada Briggs; in fact, the two young women periodically exchanged and read one another's diaries, then wrote 'prophecies' for the coming year in them" (Bunkers, 2001, p. 19).

The idea of private diaries is a modern one, drawn in part from the reader's reference to the small bound books with little locks and tiny keys that were often given as gifts to pre-teen and teenage girls in the 1950s and 1960s (Bunkers, 2001). However, in 1890s London, the idea of diaries as semi-public documents was common enough that Wilde could play upon the audience's understanding when Cecily Cardew, a character in his play *The Importance of Being Earnest*, comments that her diary "is simply a very young girl's record of her own thoughts and impressions and consequently meant for publication" (Wilde, 1984, p. 45).

The popular perception of the diary as a "confessional mode" (McNeill, 2003, p. 27) has made the transition to online venues difficult for many to understand, as allowing the world to

access the writer's most personal thoughts and feelings makes privacy impossible (Serfaty, 2004). Yet the tension between popular perceptions of information privacy and the public sharing of private information is not a new issue in the study of computer-mediated communication, of which the study of weblogs and their subgenres is a part.

For example, Witmer (1998) undertook online survey research of public newsgroup participants who posted primarily to sex newsgroups, in order to examine two aspects of the issue of perceived online privacy. In responding to a question on their perception of privacy in online communication, 47% of respondents believed the newsgroup to be a private space. Conversely, in responding to a question concerning how secure they felt in communicating online, 83% of participants either had no opinion (25%) or considered privacy to be unimportant or extremely unimportant (58%) (Witmer, 1998). Witmer concluded that the survey participants "felt that they had little or nothing to lose if their activities were discovered by unintended others" (1998, p. 140).

In expanding Witmer's newsgroup research to weblogs, Rak (2005) undertook an ethnographic study, with content analysis, of 140 weblogs produced by homosexuals. Writers in her sample closely linked their online and offline personas by using their full given names, referencing the cities in which they live, and including photographs of themselves in their posts (Rak, 2005). All of the bloggers posted in English, appeared to be American, and most lived in large urban areas of the United States. Rak found that the data exhibited a homogeneity "centered on a specific set of privileges, ideologies, and practices which would not be shared by most non-elites" (Rak, 2005, p. 178).

Like Witmer, it is probable that Rak's sampling criteria targeted weblogs created by people who felt that their identification as homosexual was not an issue of privacy. To identify

her sample, Rak did purposeful keyword searching—using terms such as "queer," "gay," "lesbian," "bisexual," and "transsexual"—of GLBT (gay, lesbian, bisexual, transgendered) weblog directories such as *QueerFilter* (<http://www.queerfilter.com/>) and general weblog directories that included "queer" keywording for entries (Rak, 2005). The method favors bloggers who had self-identified by adding their weblog to those aggregated by *QueerFilter*, or who by their use of the search terms on their weblogs had identified themselves through major search engines.

Viégas (2005) directly investigated bloggers' perceptions of privacy and their perceived liability for the information they post on their weblogs. Viégas (2005) used an online survey instrument administered to a sample of 492 bloggers. The largest group of respondents (25%) said that they posted highly personal information on their weblogs "fairly often," while 62% thought about the nature of the topic and decided if the material they were posting was too personal for publication. Additionally, respondents reported that they routinely protect the privacy of other people they mention in their blogs, including using initials rather than given names, as appropriate. However, positive or inconsequential information did not require that the identity of the person of whom they wrote be protected.

Of course, perceptions may differ from actual behavior. In their ethnographic study of blogging, initially conducted as part of a Stanford University Human Computer Interaction (HCI) class, Schiano, Nardi, Gumbrecht, and Swartz (2004) found that participants chose not to password-protect their entries when that option was available, thereby not protecting their own privacy when they could have done so. Schiano et al.'s results echo those of Viseu, Clements, and Asinall (2003), who conducted ethnographic interviews with 10 participants discussing their everyday internet privacy practices. Their study found that privacy is a concept about which

most participants expressed concern, but that their individual internet privacy concerns were often overshadowed by their activities online. The reason may be, as Serfaty (2004) found in another ethnographic study, that "diarists feel protected by the size of the internet" (p. 13).

As this discussion shows, while the modern public believes that diaries are personal items not meant for public display and thereby finds the presentation of personal materials in diary weblogs to be problematic, those who have kept paper diaries and who keep diary weblogs—or who release personal information on their weblogs—do not necessarily share that point of view. Rather, privacy is an elastic concept, dependent on the viewer's positioning. While diary weblog authors may themselves be unconcerned about the privacy of what they post online, they tend to be concerned about others' privacy, at least enough to protect them from negative comments or to protect themselves from the fallout for making such comments. Finally, bloggers often reveal a considerable amount of personal information about themselves in their blogs, although what kind may depend on whether they think they know their audiences (Qian & Scott, 2007).

3.1.1.2 Interactivity and Connectedness

Diary weblogs are not only publicly accessible, they often allow for interactivity between reader and writer, constructing the reader as both (passive) audience and active commenter—and thus as a co-creator of the entries (McNeill, 2003). Most online diaries accept, and many actively solicit, reader response to the sites' serialized entries (Sorapure, 2003) via email, comments, and guestbooks, as well as comment and trackback⁸ features, to name but a few of the communicative modes available. This combination of features merged into what was initially called *social software* (Burg, 2004) and has since become known as *Web 2.0* (O'Reilly, 2005, 2006; for counter-commentary, see Madden & Fox, 2006). These interactive affordances help to create what Kitzmann (2004, p. 91) calls "connected privacy," a situation in which direct

connections between persons and communities exist, but these connections have permeable boundaries, allowing access and the possibility of interaction to persons outside the author's initial conceptualization of the audience.

Although features that allow for interaction and co-creation are in place in current blogging software, this has not always been the case, nor does the

Sample	Average Number of Comment per Post
March - April 2003	0.9
September 2003	1.3
April 2004	0.7

Table 1. Average number of comments per post (Herring, Scheidt et al., 2006)

availability of such features mean that any given blogger will have activated it in setting up his or her weblog. In a study based on data collected in March-April 2003, Herring, Scheidt et al. (2004) found that 63% of the weblogs they sampled were using *Blogger* software, which at that time only allowed comments after the installation of a separate commenting module. As could be expected, given the default bias against comments by the software, fewer than 43% of the weblogs they sampled allowed comments.

In a subsequent longitudinal study, which included the data from the 2004 article as well as from two later samples, Herring, Scheidt, Kouper, and Wright (2006) found that roughly half of the weblogs did not allow comments, either because the feature was not a default software setting or because the blogger had deactivated it. Moreover, even for only those weblogs that allowed comments, the average rate of comments per entry was low, fluctuating across the three samples from a low of 0.7 to a high of 1.3; see Table 1. Thus, even when the weblogs allowed readers to comment, few readers actually utilized that affordance.

Another way in which bloggers can connect is via linking to other weblogs, e.g., in *blogrolls* in the sidebars of their blogs. Several authors have described interlinked weblog

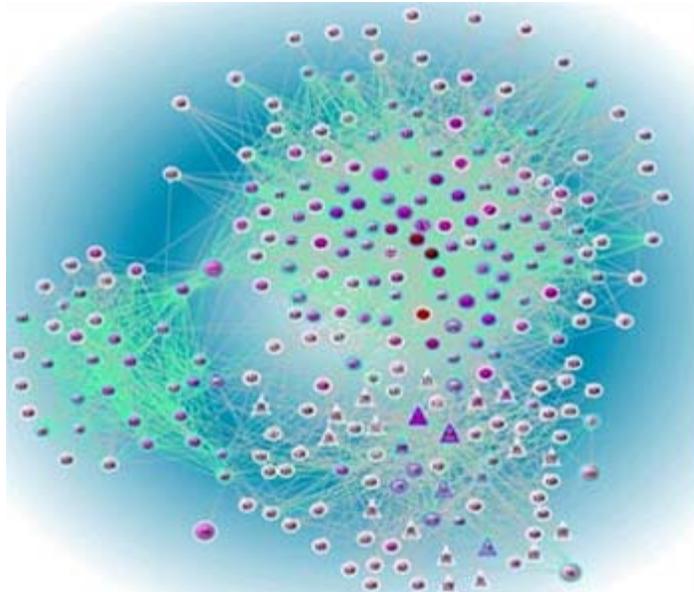


Figure 5. Three clusters of interlinked weblogs: homeschool blogs, lower left; Catholic blogs, upper center-right; A-list blogs (indicated by triangles), lower right. Green lines indicate mutual linking; gray lines indicate one-way linking (from Herring, Kouper et al., 2005)

clusters that have become communities, including knitting bloggers (Earhart, 2004) and academic bloggers (Mortensen & Walker, 2002), as well as institution-internal communities such as classrooms (Clark, 2004). In a study of social networking among weblogs identified by following sidebar links in a snowball sampling method, Herring, Kouper et al. (2005) discovered clusters

of heavily interlinked blogs, such as homeschoolers and Catholic bloggers (Figure 5).

These findings support earlier observations that bloggers favor similarity (Schaap, 2004) and shared experiences (Lampa, 2004) with those to whom they link. Relatedly, Flynn (2003) conducted a two-year ethnographic study from 1999 to 2001 of a group of women keeping online journals on the topic of weight loss, pregnancy, and body image, and found that they formed an interconnected community, using such mechanisms as links, webrings (a collection of websites joined together in a circular structure via links to the previous and the next site), discussion lists and forums, collaborations, and face-to-face meetings. Flynn concluded “*the union of shared interest coupled with opportunities for human connection create and enliven the online community*” (2003, Abstract; emphasis added).

Not all diary blogs are interconnected, however. The average number of links included in any given entry in their samples was low (Herring, Scheidt et al., 2006), as shown for three time periods in Table 2.

Moreover, nearly half of the weblogs in the March-April 2003 sample (42.8%) had no links to other weblogs on their mainpages, and the mainpages of 17% of the weblogs had no external links whatsoever (Herring, Scheidt et al., 2004).

Sample	Average Number of Links Per Post
March – April 2003	0.65
September 2003	0.43
April 2004	0.47

Table 2. Average number of links per post (Herring, Scheidt et al., 2006)

It may be that with such blogs, the author’s reasons for blogging are personal rather than social. This is consistent with the findings of Nardi et al.’s (2004) interview study of why people blog. In addition to creating and maintaining community, Nardi et al. reported that the main reasons people gave for blogging were: 1) documenting the author's life, 2) providing commentary and opinions, 3) expressing deeply felt emotions, and 4) working out ideas through writing. The second type of content is perhaps more relevant for filter blogs, but the others are all expressed frequently in diary blogs and may be achieved without connection to other bloggers. Thus blogging—despite its public nature—can also be a very personal experience. Herring, Scheidt et al. (2004) conclude that “blog authors, journalists and scholars alike exaggerate the extent to which blogs are interlinked, interactive, and oriented towards external events, and under-estimate the importance of blogs as individualistic, intimate forms of self-expression” (p. 1).

These observations complicate Kitzmann’s (2004) notion of “connected privacy,” in that rather than diary blogs having permeable boundaries that allow access and interaction to persons outside the author’s initial conceptualization of the audience, a private weblog is simply situated

in a public content, with little if any connection to, or interaction with, other websites. This suggests yet another type of “public privacy” that seems to apply especially to diary weblogs.

3.1.1.3 Language Use

Another set of issues that has attracted scholarly attention concerns the globalization of the blogosphere, especially as it is reflected in language use. The studies discussed thus far have primarily addressed English-language weblogs, which predominated in the early years of the medium (unsurprisingly, given that weblogs originated in the United States). In August 2004, the *National Institute for Technology & Liberal Education (NITLE)* estimated that 61.9% of the 2.1 million weblogs visited by their crawlers were written in English (*NITLE*, 2004), and by November 2005, *NITLE's* (2005) estimate of English weblogs had actually increased slightly, to 68.7% of the 2.9 million weblogs visited. Since that time proportionately more bloggers are using writing in languages other than English, more bloggers utilize their native languages on their sites.

David Sifry, CEO of the weblog search engine *Technorati*, stated in his April 2006 quarterly *State of the Blogosphere* report that: "English isn't even the primary language of one third of all posts that *Technorati* tracks anymore" (Sifry, 2006). In Sifry's 2007 report, Asian languages were the top blogging languages, with Japanese-language weblogs making up the largest group tracked with 37%, compared to 36% for English-language weblogs (Sifry, 2007). Chinese-language weblogs are the third largest category with 8% (Sifry, 2006, 2007). In June 2008, it was tracking blogs written in 81 languages (*Technorati*, 2008).

It is evident that there are some disparities in these estimates. One reason may be that both *NITLE* and *Technorati* identify blog languages using automated processes that other researchers have found to be suspect, in that non-English languages are often incorrectly

identified (Herring, Paolillo et al., 2007). It may be inferred that both *NITLE* and *Technorati*'s statistics underreport non-English weblogs, due to the language identification issues noted above, as well as the fact that many non-English blogs are maintained on hosting sites—such as the enormously popular *Cyworld* in Korea (Jung, Youn, & McClung, 2007)—that are not indexed by Western blog tracking services. This point is consistent with discussion on the *Language Hat* weblog (2003) about the *NITLE* statistics.

Studies of English-language weblogs have been largely limited to those using commercially available weblogging software and those that are cataloged by major weblog search engines (e.g., Herring, Kouper et al., 2004; Herring, Scheidt et al., 2004). However, Nanno, Suzuki, Fujiki, and Okumura (2004) found that hand-coded Japanese diary weblogs were quite common. While snowball sampling (e.g., Bortree, 2005; Herring, Kouper, Paolillo et al., 2005) of English-language diary weblogs may, theoretically, reach hand-coded weblogs, their presence has not been noted. This is a limitation of the existing research.

Studies focusing on non-English blogs and bloggers are thus far limited in number (see, e.g., Honeycutt (2008) for Welsh; Jung et al. (2007) for the Korean site *Cyworld*; Miura and Yamashita (2007) and Nanno et al. (2004) for Japanese; Tricas, Ruiz, and Merelo (2003), for Spanish, although there is growing scholarly interest in CMC in languages other than English (Danet & Herring, 2007). One culture that embraced blogging relatively early is Poland. Interestingly, Polish-language diaries, like their English-language relatives, appear to be produced predominantly by women writers. Cywinska-Milonas (2003, p. 151) cites Gierszewski's finding that 62% of the participants were female Polish bloggers. Similarly, in their random sample of 358 Polish-language weblogs drawn from *blog.pl*, Trammell, Tarkowski,

Hofmokl, and Sapp (2006) found that 92.2% were diary weblogs, with females producing 75% of the weblogs studied.

While local (non-English) language usage is heaviest in countries where the language is a primary mode of communication, the dispersion of people from their countries of origin to other nations means that the location of a blogger may be only a loose guide to the language in which they write their weblog, and vice versa. For example, in an ethnographic examination of a two-month weblog thread, Doostdar (2004) followed Persian-language weblogs that originated from seven cities and three continents in the Persian diaspora. The Asian-American diary bloggers studied by Karlsson (2006a; 2007) were part of a webring designed to foster diasporic connections. Many non-English-speaking users of popular social networking sites such as *LJ* and *Orkut* are located outside their homelands, for example, because they adopt the technology while studying in the U.S. (Herring, Paolillo et al., 2007).

Herring, Paolillo et al. (2007) conducted an investigation of four non-English language networks (Russian, Portuguese, Finnish, and Japanese) on *LJ*, a U.S.-based service that hosts mostly diary blogs, by following “friend” links to construct networks at two degrees of separation from monolingual source blogs. The researchers found striking differences among the four languages, with Russian blogs being most frequent and the Russian language network being the most dense and centralized (Figure 6a). This is consistent with (Gorny, 2004) observations about Russians on *LJ*. In contrast, relatively few Japanese blogs were found, and the Japanese blog network was sparse and fragmented (Figure 6b).

These patterns are interesting in that they do not reflect the global demographics of bloggers (there are more Japanese than Russian bloggers, worldwide), but rather idiosyncratic historical patterns of adoption—according to Gorny (2004), some Russian students studying in

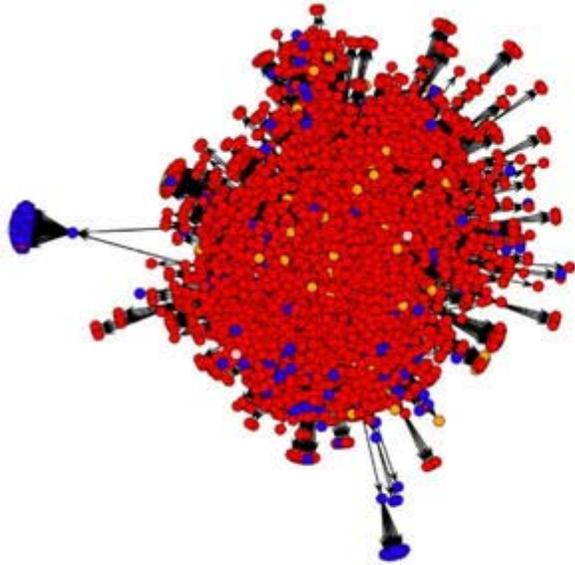


Figure 6a. Russian Livejournal network (from Herring, Paolillo et al., 2007)

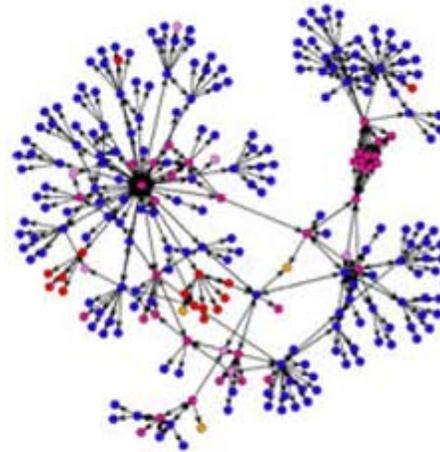


Figure 6b. Japanese Livejournal network (from Herring, Paolillo et al., 2007)

the U.S. happened to be friends of one of *LJ*'s founders and subsequently promoted the site to their friends after they returned to their homeland.⁹

Although blogging has now become popular around the world, the adoption of weblogs has not been advancing at the same rate in all countries. For example, German-speaking nations have shown a low adoption rate (Lumma, 2004), even though there are in excess of 95 million German-speakers worldwide (Gordon, 2005). The reasons for this limited adoption have not yet been identified.

3.1.2 Adolescent Diary Weblogs

As was noted earlier, scholarly research on pre-adult populations can be found under a variety of terms that bound the ages in question. Unfortunately, it is rare for the authors of such works to define the term they are using by providing an age range for their participants. In this section, the term *adolescent* is used when referring to this population in general. Adolescence is defined as the second decade of life (Steinberg, 2002) and is a term that spans many of those

used by other researchers whose work is discussed here, which cover ages ranging roughly from 9 to 25 years.

Adolescence, from a developmental perspective, “is a period of transition: biological, psychological, social, and economic” (Steinberg, 2002, p. 3). It is a natural part of growing up. As the young person works through their transitions, they develop bonds with their peer group bringing about both positive and negative repercussions (Steinberg, 2002). Online spaces that allow adolescents to experiment with self-presentation, and communication can facilitate the transmission of youth culture and peer groups. The use of these technologies has brought about new friendships (Chandler, 2007) and has created a new space for bullying (Ybarra, 2004). The ease with which some adolescent navigate their online and offline lives has given rise to the perception that adolescent’s are far more technologically advanced than their parents (Tapscott, 1998) (for a counter argument see Thurlow & McKay, 2003). With estimates ranging as high as 93% of American adolescents using the internet regularly, and among other online activities, they blog and use social networking sites (Lenhart, Madden, Macgill, & Smith, 2007), or create other kinds of content (Lenhart, Horrigan, & Fallows, 2004) this age group will likely continue to expand the potential of the websites they frequent.

Mass media outlets tend to look askance at adolescent diary weblogs, citing them as examples of a less than productive use of weblog technology. Of this point of view, Stone (2004) writes:

Many come down on those blogs as trivial, but they are in fact one of the most amazing facets of the blogging phenomenon. Teenagers talk about what interests them, what's on their minds, and what issues they are having. (pp. 53-54)

Through their weblogs, adolescents share their thoughts, often by "blurt[ing] out confessions of loneliness and insecurity—behaviour inhibited in face-to-face encounters—

despite the fact that everyone in a peer group can potentially read these outbursts" (van Dijck, 2004, p. 3). The mass media view reflects what Stern (2008) sees as adult sentiment about adolescents' internet use and the adults' conflicted stance about encouraging the positive elements of the internet, while at the same time discouraging the practices that concern them.

The media's disdain of adolescent diary weblogs notwithstanding, many adolescents are writing them. Cywinska-Milonas (2003) found that 75% of Polish bloggers were under 21 years old, with 40% being between 15-17 years of age. Less than a year later, Herring, Kouper et al. (2004) found that 39% of the random English-language weblogs they studied across two collection periods were created by authors under 20 years of age. Their samples did not include the large personal journal hosting sites *LJ*, *DiaryLand*, and *Xanga*, on which the majority of users were under 20 (Henning, 2003). In all of these studies, diary blogs predominated.

Relatedly, in a survey of American teenagers ages 12-17, Lenhart and Madden (2005) of *The Pew Internet and American Life Project* (PIAL) found that 22% of their respondents overall (and 18% of adolescents younger than 15 years of age) reported keeping a weblog, while 19% of overall respondents self-identified as keeping an online diary. These numbers make clear that adolescent authors are producing a significant number of weblogs. Lenhart and Madden (2005) also found that adolescent bloggers were more technologically savvy—sharing and creating content, remixing content, and creating websites for themselves and others—than their non-blogging counterparts. Adolescent bloggers also spend more time online than do their non-blogging peers, with 27% of daily internet users responding that they maintain a weblog (Lenhart & Madden, 2005).

Most studies of adolescent blogs take gender into account. Bortree (2005) comments in her methodology section that she chose to look at weblogs created by adolescent girls only,

"because I suspect that their experiences and uses for the medium are different from those of teenage boys" (Bortree, 2005). As yet, however, no published work has focused solely on adolescent males' use of this personal publication technology. Therefore, the following discussion of research on adolescent weblogs is organized in two parts: studies that address (and compare) boys' and girls' use of the technology, and studies that address the blogs of girls alone.

3.1.2.1 Girls and Boys

Adolescent girls are more active bloggers than are adolescent boys. Lenhart and Madden (2005) found that females between the ages of 15 and 17 are more likely to author weblogs than their male peers, 25% of girls compared to 15% of boys. Similarly, Herring, Kouper et al. (2004) found that in their random samples of weblogs, females created more personal journal weblogs than did male authors, although both sexes created more diary weblogs than any other genre; this was especially true for teens and what the researchers term "emerging adults" (20-25 year olds) (Arnett, 2000). The distribution they found of weblog types (journal, filter, k-log, mixed) by

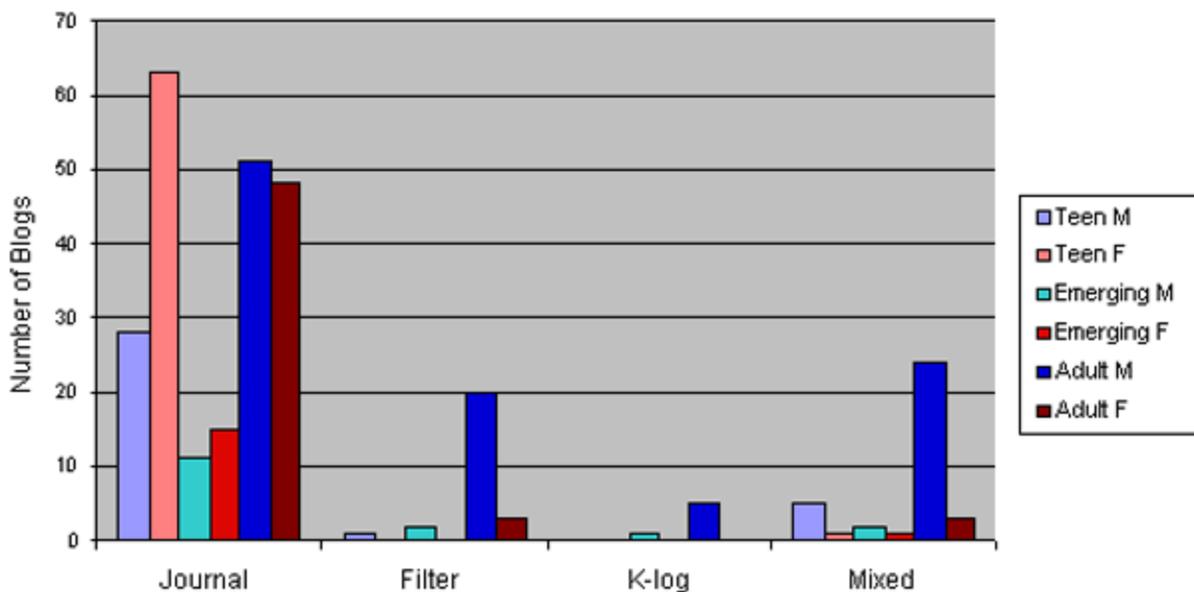


Figure 7. Distribution of weblog types by age and gender of author (from Herring, Kouper et al., 2004)

author age and gender is shown in Figure 7.

Given this distribution, it is not surprising that the bulk of the research on blogging looking at adolescents of both sexes has analyzed diary weblogs. In one frequently-cited study, Huffaker and Calvert (2005) quantitatively analyzed a gender-balanced sample of 70 teen blogs drawn from popular hosting services such as *LJ* and *Blogspot*, using content analysis and an automated tool, DICTION 5.0, to analyze the language used in blog entries. They found that while males tended to use more active and resolute language than did females, boys and girls did not differ in the use of passive, accommodating, or cooperative language. They also observed that male bloggers used somewhat more emoticons and were more likely to mention being homosexual than did female bloggers, although the absolute number of such mentions was low. The findings of gender similarities are inconsistent with previous findings on gender differences in computer-mediated language (e.g., Herring, 2003), leading Huffaker and Calvert (2005) to suggest that the latest wave of internet users has less fixed gender roles than previous generations.

However, other research finds gender differences in adolescent blogs. In a qualitative study, Scheidt (2006) examined a mixed group of adolescents, focusing on a convenience sample of 12 weblogs identified from the *Eaton Web Portal*¹⁰ (<http://portal.eatonweb.com/>), a site where bloggers can register their work. She found that the blogs were evenly divided between female and male adolescent authors, and the average age of their authors was 16.9 years, which put them at the upper end of the 15-17 year old range identified by Lenhart and Madden (2005).

During adolescence, young people may have the egocentric feeling that an imaginary audience is watching them as they go through their daily lives (Elkind, 1967). This imagined audience can lead adolescents to believe that their behavior is the focus of attention of those

around them (Steinberg, 2002). Scheidt (2006) proposed that this imagined audience carries through into adolescents' self-presentation in their diary weblogs.

To identify the types of audiences (Anderson, 1996) adolescent diary bloggers seek, Scheidt (2006) applied Langellier's (1998) five types of audience for personal narrative to the 89 entries in her sample. She found that males produced more *witness to the experience* posts—presenting a personal experience narrative from the past (Denzin, 2001)—than did females. Males produced more *narrative analyst* posts—meta-discussions of the narrative that may include discussion of the audience's potential reactions—and *critic* posts—that ask the audience to assess the merits of the author's performance. Males also posted more entries per page than did their female counterparts, averaging 8 entries for males compared to 6.8 for females, length of individual entries was not measured. In contrast, female authors wrote more entries seeking *unconditional support* for their emotions and *acting as cultural theorists* (Scheidt, 2006). These overall findings are supported by Stern's (2008) comments that the adolescents with whom she had spoken use their personal websites (homepages and weblogs) as places for self-reflection and centers from which to seek social validation.

Scheidt's research underscores the need to consider gender when analyzing adolescent blogs. While public perception of diary blogs is both as a place to record the events in one's life—most similar to Langellier's *witness to the experience* category—and as a place to record one's deepest emotions—most similar to the *unconditional support* category—, in this sample, the first of these functions was fulfilled more often by male bloggers and the second by females.

How can the apparently conflicting results of Huffaker and Calvert (2005) and Scheidt (2006) be reconciled? In a study of adult blogs, Herring and Paolillo (2006) discovered that gender differences in word frequencies disappeared when blog type—diary or filter—was taken

into account. Huffaker and Calvert (2005) also analyzed word frequencies, and they did so within a single genre, diary blogs; this may explain why they found relatively few gender differences. In contrast, previous research on gender and CMC has tended to focus on discourse-pragmatic phenomena, such as politeness and rhetorical presentation (e.g., Herring, 2003). Scheidt's (2006) methodology falls in this latter category, making her findings consistent with previous research that looked at similar discourse-level phenomena.

3.1.2.2 Girls

In their survey research, Lenhart and Madden (2005) found that 35% of the adolescents creating online media in the United States are girls, with 25% of girls 15-17 authoring a weblog. With this high volume of young women creating weblogs, and with diary weblogs predominating (Herring, Kouper et al., 2004), it is surprising to find only two articles focusing on girls' diary blogs.

In her ethnographic study, Bortree (2005) found that adolescent girls used ingratiation (Dominick, 1999; Jones, 1990) as a strategy to gain the affection and approval of others through their weblog performances, consistent with Scheidt's (2006) finding that girls' blog entries invite *unconditional support*. Adolescent girls often publish the details of their daily lives, including who they spent time with, where they went, and what they did together. In Bortree's (2005) study, girls often referenced many people in their posts, including using a *shout out* to acknowledge others. A *shout out* occurs when the girls address each other by name (Bortree, 2005).

By extending her observational methodology to include interviews with a group of 13 18-year old bloggers, Bortree (2005) found that the participants used direct and indirect expressions of self to gain acceptance from acquaintances and to maintain acceptance in the circle of close

friends. In so doing, they create a position for themselves in their shared community. At the same time, through sharing intimate details of their lives, the girls make “themselves vulnerable and even risk exposure to these same people, as some have found” (Bortree, 2005, p. 22), suggesting a more pressing concern for privacy than was found in studies of diary bloggers in the general population.

When she examined the same adolescent communities more closely, Bortree (2005) observed that the community structure was in constant flux, “with people moving from blog to blog, people starting blogs after reading friends' blogs, and people abandoning blogs entirely” (p. 13). This is consistent with Henning's (2003) earlier finding that 66.0% of blogs surveyed had not been updated in two months and may have been permanently abandoned; this rate did not vary based on the bloggers' age. Bortree suggests that further research is needed to ascertain how many of these apparently abandoned weblogs are not indications that the writers have stopped blogging, but rather that they have moved their writing to new blogging sites or services.

Another study examined perceptions of privacy by self-identified adolescent queer female diarists in the *ikisgirls* and *birls LJ* communities, both of which centered on themes of gender identification and gender transgression (Driver, 2006). Driver found that bloggers in these communities use personalized handles and icons when joining discussions without disclosing a self, “mingling with others through a concealed or possibly an invented identity¹¹” (Driver, 2006, p. 231).

Driver's observation differs from Bechar-Israeli's (1995) finding that Internet Relay Chat (IRC) nicknames are highly personal. Scheidt (2001) found support for Bechar-Israeli's findings in adolescent chat spaces, in that 95% of the participants used an actual name/nickname/diminutive as their chat name or handle. Herring, Scheidt et al. (2006) found that

(adult) bloggers also tend to refer to themselves using a real first name in their blog entries. However, in a study of the names of adolescent weblogs themselves, Scheidt (2005) found that weblog names tend to be intertextual, drawn from other media including song titles, lines of poetry, and popular novels, rather than strictly descriptive of the blogs' contents. These titles frame the identity the author creates online; the nicknames used by bloggers do likewise.

The communities Driver studied loosely limit their membership to girls between 14 and 24 years of age (Driver, 2006), spanning the adolescent (Steinberg, 2002) and emerging adulthood¹² (Arnett, 2000) years. The groups differ, in that *ikisgirls* focuses on desire between young women, while the *birls* group focuses on "girls who identify as boys" (2006, p. 232). In both the *ikisgirls* and *birls* LiveJournal communities, topics of discussion include hair styles, clothing choices, dating advice, and sex information. However, the framing of each community around the themes of gender identification and gender transgression leads to somewhat different takes on these common subjects. For example, while the *ikisgirls* community discussion may address "how to tell if a girl is straight or queer?" (Driver, 2006, p. 236), the *birls* community appears more introspective, with discussions of gender ambiguity and choices that challenge "the clear-cut lines of being girl/boy, straight/queer, and female/male" (Driver, 2006, p. 238). At the same time, both communities have in common that the young women who populate them use their weblogs to create spaces of belonging that allow them to establish social networks that disseminate information and provide support.

3.2 Multimedia Diary Weblogs

Thus far, the research surveyed in this paper has concerned weblogs in which communication takes place primarily through text. Increasingly, however, content management software (CMS¹³) allows authors to include multimedia content in their weblog posts.

Multimedia potential now extends far beyond the graphical design elements of the actual webpage, to the embedding of pictorial elements (Scheidt & Wright, 2004) and audio and/or video in the posts (Walker, 2005). The phenomenon of podcasting, allowing audio commentary and music to be embedded in the weblog RSS¹⁴ feed, is another growing use of the technology (Rainie & Madden, 2005). These forms create a *rich-media weblog* (Kelliher, 2004, p. 62) environment where authors can create a locus of performance (Langellier & Peterson, 2004) through the use of media. By using rich-media elements, bloggers may also create a sense of *weblog presence*, or a feeling that the reader(s) and the writer have been transported to a shared scene of the events (Hendrick & Örnberg, 2004).

The weblog formats reviewed in this section have been distinguished, in what has been written about them so far, based largely on technological affordances. While all are forms of blogging, they have not yet been analyzed as genres or subgenres, although the more popular of them can be considered *modes* of CMC, in the sense that Murray (1988) and Herring (2007) use the term to describe technological formats that develop social norms associated with typical patterns of use. Following Yates and Orlikowski (1992)'s observation that technological format can be a defining structural aspect of a genre-- multimedia weblogs should be considered an emerging subgenres of weblogs.

Moreover, I consider them diaries, despite the fact that they have not been so treated in the existing literature, on the grounds that personal narration is a common use of each format. By including and discussing them under this rubric, I provide a broad classification and synthesis of the full range of diary blogging technologies currently in use. In contrast, discussion of multimedia diary weblogs to date has taken place primarily in essays about individual media,

without the authors' incorporating an overarching view of the medium's positioning within the pantheon of weblogs, beyond the ubiquitous observation that more is better.

Multimedia weblogs—including photoblogs (Cohen, 2005) and videoblogs (Kelliher, 2004)—provide additional instrumentalities that can be used to capture, present, and archive the diary weblog writer's daily life. In her work on paper diaries, Culley (1985) writes:

The most intriguing state in which to find a manuscript is the one complete with all the bits and pieces the diarist placed inside: clippings from newspapers, dried flowers, mementos from friends. Each detail adds a bit of knowledge or suggests a mystery. (p. 14)

In online diaries, multimedia provide those bits and pieces that the diarist uses to give us—the audience—a richer view into their lives and their worlds. The following discussion of multimedia weblogs is organized into three parts: still-image blogs (photoblogs, moblogs, and CyborgLogs), sound blogs (audioblogs and podcasting), and video blogs (videoblogs and lifelogs). To date, these three formats have received very little scholarly attention. After a modest surge of interest when the formats first became available, continued interest seems to be located primarily with computer programmers who are developing new interfaces to capture these multimedia presentations. Thus, much of what is surveyed here is necessarily descriptive in nature.

3.2.1 Still-Image Weblogs

At the time when early weblog research was carried out, there was little use of still-images and graphics (Herring, Scheidt et al., 2004; Scheidt & Wright, 2004). However, more recent research has begun to mention the presence of still images in diary weblogs as part of the blogger's self-presentation (Tobin, 2005). The diary weblog's flexibility allows the content

creator to combine the elements of photos, whether uploaded or transmitted to the weblog site, with text to provide a variety of glimpses into themselves and their lives. I use the terms *content producer* and *content creator*, as *writer* no longer encompasses the work done to create the website. Rather, the content creator acts as an editor, sorting through bits, compiling selections, and constructing his or her vision of the finished whole. Two types of still-image weblogs have been distinguished: photoblogs and moblogs.

3.2.1.1 Photoblogs

Photoblogging utilizes blogging technology to post photographs in addition to or instead of text entries. While photographic archives could be found online since the early days of the internet, the advent of CMS, which allowed for easier display of the mostly amateur works, helped to push this subgenre into wider use (*Wikipedia*, 2005a). The form was born on Sunday, October 27, 2002, when L. Brandon Stone launched his creation *Photoblogs.org* (<http://www.photoblogs.org/>) (2005a). This photoblog tracking service originally started with 15 photoblogs, grew to 9,724 photoblogs (2005a), and seven months later had increased by 25.3% to over 13,057 photoblogs (2005b). PIAL reports that 21% of American internet users have posted a photograph to a website (Lenhart, Horrigan, & Fallows, 2004); this number, in conjunction with the photoblog numbers, shows that photo sharing, in a variety of forms, is popular online.

On its wiki, *photoblogs.org* defines photoblogging as:

a website whose primary content is photographs displayed in a log format. A photoblog, therefore, is a form of weblog (blog). Whereas a typical blog uses text as its primary form of communication, in a photoblog the emphasis is photographs. Some blogs also contain pictures; some photoblogs also contain text. When is a blog a photoblog? When the emphasis is the photography and the images are not just used to illustrate the text. (*photoblogs.org*, 2005c)

Meyer, Rosenbaum, and Hara (2005) observe that sites such as *flicker.com* (<http://www.flickr.com>), a popular photo-sharing website, utilize some aspects of photoblogs as well as galleries—collections of images that are sometimes sorted into categories or albums or by date, if they are sorted at all (*photoblogs.org*, 2005a). They note that researchers must make conscious methodological decisions to either include or exclude these boundary-spanning sites when planning their research. It should be noted that *flicker.com*, if included as a weblog site, could also be considered a moblog site. Pictures are captured and sent to the website from a cell phone—an aspect discussed later in this paper, and a confounder that would, as Meyer et al. (2005) noted, require researchers to state their methodological decisions clearly in their work.

In his ethnographic study of 30 photobloggers, Cohen (2005) states that “text is to blogging as photographs are to photoblogging” (p. 886). Cohen notes that while all photoblogs include photographs, many also contain text; in particular, photobloggers often write captions for

their photographs to relay their intention in taking a specific picture (Cohen, 2005). In the photoblog picture in Figure 8, the caption on the lower left of the frame reads: “My grandfather, who turned 89 yesterday.”

Conversely, text blogs, particularly diary weblogs, may contain photographs along with their text; thus the distinction between the forms is not

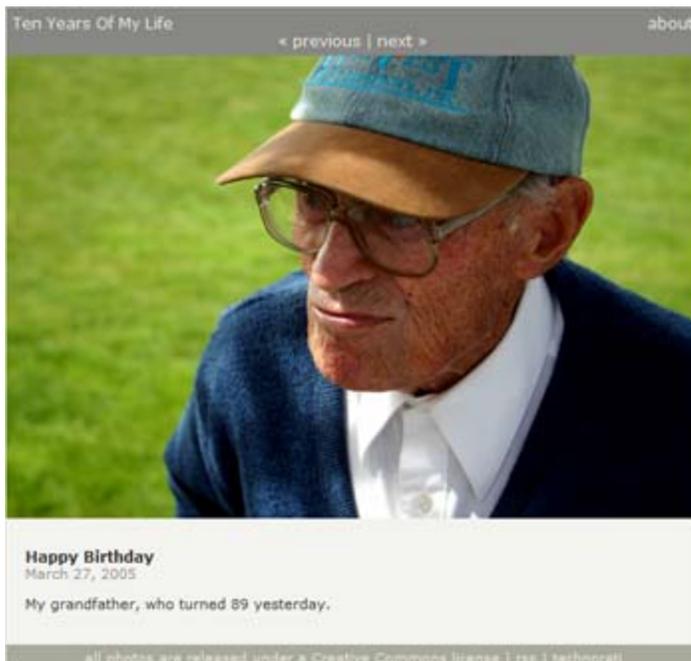


Figure 8. Photoblog post taken from *Ten Years of My Life* (<http://tenyearsofmylife.com>)

always a clear one. Cohen uses the focus of the entry to draw lines between the forms: Where bloggers use text to tell their stories, photoblogs focus on the photographs with text added, if needed (Cohen, 2005)—much like the difference between reading a printed text and viewing a picture book. While this may be a fine distinction, it is of central importance when distinguishing between photoblogs and moblogs.

Photobloggers orchestrate their presentations by taking, selecting, annotating, and viewing their photography on their photo weblogs. Their choices in displaying naturalistic photographs in constructing the photographs they exhibit let us, the viewers, into a part of the photographers' lives, where they go, what they see, and how they look at the world around them. In this way, their photos tell a part of the graphical story of their lives.

In contrast, in their content analysis of South Korean college student's photo-sharing on *Cyworld* (<http://www.cyworld.com>), a Korean language site, Shim and Lee (2005) found that photobloggers use their weblogs as socio-communicative devices. In particular, *Cyworld* users' pictures focus on human forms known to the blogger. Shim and Lee's subjects posted pictures more frequently than they posted text to their weblogs.

Meyer et al. (2005), whose research venues include both *photoblogs.org* and *flickr.com*, conducted a content analysis of 70 photoblogging and photo-sharing sites, finding that 87.1% of the sites were in English, with smatterings of other languages present. They note that very few users of either site post on a daily basis, although *flickr.com* users post more pictures per month, a mean of 132.3 compared to 34.1 for *photoblogs.org*.

3.2.1.2 Moblogs

The term *moblog* is a blend of *mobile* and *weblog*. Moblogs are weblogs that can be updated while the author is “on the go” through the use of a cell phone or personal digital

assistant (PDA). They allow multimedia content to be created, uploaded, and displayed on the internet immediately. While *moblog* could hypothetically be a catch-all term for audio, still photo, video, or text posted using cell phone technology (Conquelin, 2004; Trammell & Gasser, 2004), it has, instead, come to be associated specifically with cell phones and photographic blogs (Sit, Hollan, & Griswold, 2005).

Ito (2003) declares on his *SocialText* webpage that Mann's (1995) *wearcam.org* was the first moblog post. This declaration illustrates the complicated overlap between the terms *moblog* and *CyborgLog*; these terms have been further complicated by the latest entrant in the field, *lifecasting* (Solis, 2007) or *lifelogging* (Allen, 2008), which is discussed in a later section. The primary difference between these three forms is technological: Standard handheld technology is utilized for the moblog; wearable, often experimental or medical, technology is used for the *CyborgLog*; and the streaming of everyday life found in *lifecasting* (*Dandelife.com*, 2007) is made possible through a combination of fixed and wearable video equipment. Mann's (1995) *cyborg* images were captured using a wearable goggle camera. For these reasons, Mann's work will be classified as a *CyborgLog* in this paper and is discussed more fully in a later section. *Lifelogging* (aka *lifecasting*), due to its streaming video nature, is discussed under the video section.

The first documented use of a mobile phone to post a picture to a weblog appears to be in a January 4, 2001 post by Stuart Woodward (Ito, 2003). The photograph shows Woodward's monitor displaying a Python program he had worked on that day (Woodward, 2001). Since that time, websites such as *Textamerica* (<http://www.textamerica.com/>) have sprung up to support moblogging.

Moblogs are dynamic sites, with bloggers entering and leaving the field at a fast pace. Adar (2004) used a webcrawler to archive new pictures posted to moblog pages during two timeframes, in 2003 and 2004. Between the two crawls, 1332 of the original 2780 users, or 47.9%, no longer had an account with the service and as such, their moblogs had ceased to exist (Adar, 2004). The remaining 1448 sites further declined by 93.2%, to 98 users, by week 30 when a third crawl was made to archive the websites (Adar, 2004).

Similarly, the study found that the median moblog author posted eight pictures during his or her initial week maintaining the site. The number then dropped off to one photo per week within a month and dropped further to a median of zero photos after five weeks (Adar, 2004). The declines in active moblogs imply that the ease of use associated with mobile technology does not, in and of itself, foster posting activity. It is also possible that the initial increase in posting coincided with the poster's acquisition of a camera-equipped cell phone, and that daily use of the equipment dissipated the initial urge to document his or her life with these picture forms. The answer to this question would be of interest, but it is outside the boundaries of Adar's research.

3.2.1.3 *CyborgLogs*

A *CyborgLog* is a first-person recording of an activity in which the photographer is an active participant (Wikipedia, 2005b). CyborgLogs are also known as *glogs* (Wikipedia, 2005b) and *sousveillance* (Wikipedia, 2005b; Mann, 2002), although the latter term is more often applied to the technology than to the weblog aspect of the phenomenon. CyborgLogs can also be multichannel audiovisual feeds used to capture medical information (e.g., electrocardiogram files) or for personal surveillance (Wikipedia, 2005b). While non-medical first-person recording can be done with a cell phone, the perspective of the person capturing the event changes from

participant to observer. Because of the demands of using the device, the user's focus is drawn to the device rather than to the event being recorded (Dickie, Vertegaal et al., 2004). This split focus can be a problem when recording everyday documentaries of one's own lived experiences. Therefore, wearable recording devices that create a first-person perspective video and record automatically allow the author to maintain his or her perspective as participant, with occasional monitoring of the recording system (Dickie, Vertegaal et al., 2004).

Mann's *wearcam.org* (1995), which was introduced in the Moblog section above, is an example of a CyborgLog. The series of pictures seen in Figure 9 were captured at a fire on or near the University of Toronto campus. Mann displays the images he captured from his first sighting of a fire hose on the ground through one complete buffer loop of his capture system. In total, 43 individual still shots are displayed, although there is no mention of how much time expired between the first and last shots. Mann (2005) continues to experiment with wearable

isn't it cool, those on mosaic, world wide web for first time see news as it happens?



Figure 9. A three photo stream with commentary from Mann's first CyborgLog (<http://wearcam.org/eastcampusfire.htm>)

technologies, although his website does not discuss his current weblog capture or archiving practices.

3.2.2 Sound Weblogs

Sound weblogs have been an underexplored area of diary blogging. There is scant research looking at how these technologies were and are used for personal documentation. More

generally, it appears that the movement from text-based weblog research to audio weblogs has generated limited academic interest. This is unfortunate, as both forms of sound blogs can be created, at least in the initial stages, without a computer, making them qualitatively different from what has come before. I discuss two types below.

3.2.2.1 Audioblogs

Audioblogs are weblogs that feature recorded audio messages; these messages replace text posts in most cases. Audioblogs are typically recorded using a cellular phone or PDA, which is then used to upload the recording to the blogging site, making this a form of mobile blogging.

On his weblog, *Audioblog/Mobileblogging News*

(<http://radio.weblogs.com/0100368/stories/2002/09/13/whatIsAudioblogging.html>), Gilchrist

(2002) opined that audioblogging—specifically mobile audioblogging—is a first step to

increasing blogging's reach beyond the PC. Even with the potential to release bloggers from

their computers, Trammell and Gasser (2004, p. 14) identified audioblogs as the least popular

weblog genre in terms of utilization, although they went on to comment that it was one of the

more personal forms of blogging, since the “audioblogger's voice transmits the message.”

3.2.2.2 Podcasts

The first widely known podcast or MP3 blog was *Flux Blog*, which was created in early 2003 by Matthew Perpetua and contained an eclectic mix of music generally centered on recent

rock and pop, including Perpetua's commentary on the songs, artists, the music industry, and

music in general. The term *podcast* is a combination of the name of the Apple *iPod* MP3 player

and *broadcast* (Rainie & Madden, 2005). An *iPod*, however, is not required to listen to podcast

MP3 format files, which can be played on any device that utilizes the format, including a

computer. Podcasts are typically downloaded from the internet using widely available software

such as *iTunes* (<http://www.itunes.com>), which gathers, downloads, and automatically transfers MP3 enclosures onto a portable MP3 player (Curry, 2004; Rainie & Madden, 2005). The constellation of podcasting sites has been referred to as the *podosphere* (Barker, 2005) a blend of podcast and blogosphere.

Curry, on his website *iPodder.org*, details how he and Dave Winner met in 1999 and discussed the need for a software mechanism to allow large files to be downloaded to constantly connected computers during off-peak hours (Curry, 2004; Winer, 2004). Following their conversation, Winer created the enclosures format that was implemented December 2000 (Hammersley, 2003). Curry (2004) recounts that for the next several years he and Winer preached the potential of the enclosures but were unable to motivate adoption of the technology.

Widespread adoption did not begin until Curry created the *iPodder* software program to use enclosures and released the software in October 2003 (Curry, 2004). Following this release, podcasting began to grow in popularity. Curry credits the rapid growth of the podcasting movement to an August 30, 2004 article in *The Inquirer*, in which Mohny (2004) details the workings of the software and states that hopefully popular radio programs will become available through the medium, so that he can listen asynchronously.

While podcasts have not yet replaced traditional or satellite radio programs, they are becoming staples in classrooms (Richardson, 2006) and political campaigns (Johnson, 2006). These uses tend to play to podcasting's two strengths: the ability of the technology to be used on the fly—a professor wearing a microphone can record a lecture and make it available to students and others; and the ability to edit the recorded material—professional fades can be added to musical programs, allowing the podcaster's voice to enter and depart at the appropriate sound levels.

No scholars have yet studied the use of this technology for documenting the podcaster's life through diary entries. Yet a Google search for the terms *podcast* and *diary* reveals that the technology is indeed being used in this manner. Of particular note are two diary podcasts that illustrate the breadth of potential for voice diary entries. First, *Radio Diaries* (<http://www.radiodiaries.org/>) is a not-for-profit organization that produces a series of podcasts in cooperation with *National Public Radio*. *Radio Diaries* works with underrepresented populations—for example, teenagers and prison inmates—to produce stories from their lives, then broadcasts the stories both online and through their traditional radio programs. Another example of a diary podcast is *Bradley's Secret Diary* (<http://www.podcastdirectory.com/podcasts/35806>), which is hosted as part of *PodcastDirectory.com*. In his podcasts, Bradley, an undergraduate student in the United Kingdom, discusses his life, and in particular navigating his way through homosexuality. His text description of the site includes the tag line, “join me in my journey.” It should be noted that *Radio Diaries* includes both diary and autobiographical entries (see Eakin 2008). By virtue of their association with *National Public Radio* it can be assumed that *Radio Diaries* are edited to meet their time limitations. *Bradley's Secret Diary* is apparently an unedited stream-of-consciousness narrative of Bradley's chosen topics.

Both of these podcast sites provide the listener with the content creators' view of their own worlds in their own voices. As Trammell and Gasser (2004) wrote about audioblogs, podcasts also allow diary bloggers to provide listeners a more intimate-feeling look into their worlds, as they listen to the content creators' stories told in their own voices.

3.2.3 Video Weblogs

Video weblogs, a term I constructed to differentiate the superordinate subcategory from the specific technology of videoblogs, are the most recent entry in the diary blog pantheon.

3.2.3.1 Videologs

Videologs (*BBC New*, 2005), also known as vlogs (Coggins, 2005) and vogs (Coggins, 2005; Miles, 2005), are weblogs that use video to tell their stories, often instead of or in addition to text (*Wikipedia*, 2005c). Unlike other writers, Hoem (2004) makes a distinction between video-based *moblogs*, *videologs*, and *vogs*. For Hoem to consider a weblog using video to be a true *videolog* or *vog*, the work must have been edited; raw footage fed into a weblog format would be considered a *moblog*. *Videoblogs* are further defined as combinations of diary footage and found film. Similarly, Hoem (2004) defines a *vog* as edited visual sequences with interactive elements. Because the use of these terms has not been standardized, and because many authors do not specify if their visual data were edited prior to posting, I use *vlog* as a generic term throughout this section.

Miles (2005), himself a vlogger whose entries often include diary material, notes that vloggers embed compressed video content into their blogs, thereby minimizing the bandwidth required to view their entries. Other vloggers utilize RSS enclosures as a way to bypass the bandwidth limitation found when video is embedded into an HTML page (Coggins, 2005). These vlogs, like podcasts, can be downloaded for remote viewing.

A *Google* search for *video* and *diary* found sites that comment on world situations, such as conflict in the Sudan (<http://www.youtube.com/watch?v=eFVIHsaq5yg>), and a *BBC* autobiographical video in which a Chinese civil rights activist described his life under house arrest (<http://www.guardian.co.uk/news/video/2008/feb/01/hu.jia>). Of the sites listed and

presented on the first page, none appear to be personal diary video materials created by someone who is not well-known. Therefore, it appears that vlogs are either not being produced by average diary bloggers or that such vlogs are present primarily on video sharing social networking sites such as *YouTube* (<http://www.youtube.com>), a social networking site, which fall outside the purview of this paper.

3.2.3.2 Lifelogs

Lifelogs are the newest mode of multimedia diary blogging; they involve the process of capturing a lived life through video and occasionally still images. As an emergent form, the concept of *lifelogging* is also sometimes referred to as *lifecasting* (*Dandilife.com*, 2007), a term that is easily confused with the *lifecasting* and *life-casting* terms for the sculpting of the human form by direct impression of body parts (Hillman, 2008). To add further confusion, the term *lifelog* has been used to mean a text-based diary weblog (van Dijck, 2004), and is not to be confused with *Nokia Lifeblog* (*Carlson Analytics*, 2005), a proprietary interface for creating moblogs with audioblog features. Given these conflicting and contradictory terms, I use the term *lifelog* in this paper to represent the use of digital video technologies to capture lived moments from a first-person perspective.

While a variety of techniques are used in this emerging form, true lifelogs are streamed live, primarily from the content creator's perspective—although periods where the camera is viewing the content creator are possible. Early adopters of lifelogging have often been computer programmers who remove their wearable cameras and set them on their desks, rather than making the proprietary code on their computer screens visible to the audience¹⁵. Some lifeloggers broadcast 24/7 (Guynn, 2007), similar to earlier webcam sites which showed the activities of the person from the third-person perspective (Jimroglou, 1999). Others limit their

lifelogging to special events, allowing the audience to experience first-person moments in their lives along with them (Ozawa, n.d.).

Scholarly interest in this form has been limited to legal discussion of privacy and surveillance issues inherent in archiving every moment of a person's life. These perspectives are important as we move into a time of ubiquitous surveillance both from organizations and individual lifeloggers. However, given that full life recording has long been a staple of science fiction, including the 2004 theatrical film *The Final Cut* (<http://www.imdb.com/title/tt0364343/>), the lack of scholarly research can probably be attributed to the newness of social networking sites, such as *justin.tv*, that define themselves as spaces for lifelogging.

4. Methodological Issues in Researching Diary Weblogs

As the literature review in the previous sections has shown, diary weblog research has employed primarily social science methodologies in data collection and analysis. The most common methods represented in the literature are content analysis, ethnography and interviews, and surveys. Some weblog studies have also adopted a quantitative approach, making use of computer-assisted tools to harvest weblogs and automate or partially automate their analyses. In the final subsection of this section, I discuss some of the major ethical issues in researching adolescent diary weblogs.

4.1 Content Analysis

Krippendorff (1980, p. 21) defines content analysis as “a research technique for making replicable and valid inferences from data to their context.” Bauer (2000, p. 134) refines that use of *context* to mean “indicators of worldviews, values, attitudes, opinions, prejudices and stereotypes.”

The backbone of the content analysis process is the categorization and coding of data. Rossman and Rallis (1998, p. 171) describe coding as “the process of organizing the material into ‘chunks’ before bringing meaning to those ‘chunks.’” Coding involves dividing text data into category chunks, and labeling those categories with a term, often a term based in the actual language of the participant as found in the data set (Creswell, 2003). The set of categories and their values for a project are often referred to as the codebook (Bauer, 2000). Content analysis relies on numbers in establishing the frequency of incidences from the codebook; however, content analysis is also a qualitative method (Bauer, 2000).

Historically, content analysis has been done by hand (Creswell, 2003; Weber, 1990), by human coders utilizing paper, pencils, coding sheets, and a codebook, along with the materials

under study. In recent years, computers have been used increasingly to assist in the coding and counting process.

Content analysis is also often used to analyze online content, especially web pages. Herring (forthcoming 2009) reviews some of that research, and proposes an expansion of traditional content analysis to include classification-and-counting-type methods for analyzing a variety of content types. Her schematic model of Web Content Analysis is reproduced in Figure 10.

Herring (forthcoming, 2009) suggests that such a model can be helpful in analyzing weblogs, which include interactive exchanges (comments, etc.) and hyperlinks, in addition to

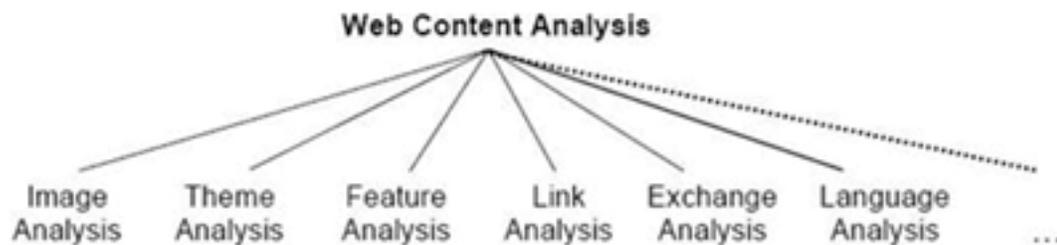


Figure 10. The expanded paradigm of WebCA (Herring, forthcoming 2009)

static content (features and themes) and multimodal elements (images, video).

Content analysis has often been the method of choice for studying weblogs, either alone or in combination with other methods. For example, Herring, Scheidt et al. (2004, 2005) characterized weblogs as a genre using classic content analysis methods. To analyze their 203 randomly-selected weblogs, they developed a codebook of 45 features based on a combination of media claims about blogs, published work by blog specialists inside and outside academia, and observations about the data themselves, using a grounded theory approach (Glaser & Strauss, 1967). Their coding scheme also included demographic information about the blog authors. An iterative process was utilized to refine the codebook; multiple trained coders coded the data; and

interrater agreement measures were calculated. These methods permit both generalizability and empirical rigor. However, the bloggers' social context was not taken into account in this study.

In their content analysis study characterizing photoblogs, Meyer et al. (2005) first culled terms related to photoblogs from popular press news articles; the terms were analyzed using a word frequency software. They then conducted a content analysis of themes in photo-sharing forums, for which a codebook was developed during pilot testing. In addition, Meyer et al. (2005) adapted the codebook from Herring, Kouper et al. (2004) and Herring, Kouper, Paolillo (2005) for photoblog features and applied it to the analysis of 25 photoblogs selected using the randomizer on photoblogs.org.

Huffaker and Calvert (2005) employed content analysis in addition to using an automated language analysis software tool, DICTION 5.0, in analyzing a sample of 70 adolescent blogs retrieved using purposive search terms related to teens and blogging. A grounded theory approach was used to identify coding categories for such features as emoticons and author information; these were coded and counted manually by two coders. Use of the DICTION tool itself can be seen as a kind of automated content analysis of structural features (word tokens), consistent with Herring's (forthcoming, 2009) suggestion that automated methods of classification and counting be included within the scope of Web Content Analysis.

A general limitation of content analysis is that it focuses on manifest content and what can be inferred from such content; it does not get at people's motives for producing that content or their reactions to it, unless those are expressed as part of the content. Moreover, Krippendorff's (1980) requirement that content analysis include the context of the materials is not always observed, especially when categories are identified by automated means.

4.2 Ethnography and Interviews

In studies of diary weblogs, content analysis is often used in tandem with ethnographic methods, both of which share the qualitative research goal of contextualizing the data (Gorman & Clayton, 2005). Tedlock (2000) bounds, rather than defines, ethnography as “an ongoing attempt to place specific encounters, events, and understandings into a fuller, more meaningful context” (p. 455). Ethnography “is a continuation of fieldwork...[that] connects important personal experience with an area of knowledge” (p. 455). Unlike the other methods discussed here, ethnography is both a process—combining research design, fieldwork, and methods of inquiry—and a product of the process, which may be text, multimedia, or performance (Tedlock, 2000).

The process of ethnography has evolved out of anthropological traditions and situates the researchers as both a participant and an observer (Patton, 2002). Traditionally, being a *participant* implies emotional involvement with the people the researcher lives with and studies, while as an *observer*, the researcher maintains a stance as an objective, detached viewer (Tedlock, 2000). New forms of ethnography challenge this bifurcated stance by making the researcher a central character within both the research process and product (Denzin & Lincoln, 2000).

Ethnographic products utilize a variety of genres, including monographs, journal articles, textbooks, novels, and travelogues (Tedlock, 2000). Three of the forms Tedlock (2000) describes border on the subject of this paper, diary weblogs: They are life histories, memoirs, and narrative ethnography, all of which unitize diary-like fieldnotes to record activities and observations from the researcher’s point of view. The participants’ perspectives may also be recorded from interviews.

The ethnographic studies reviewed in this paper utilized one of four research approaches—participant observer, observation only, interviews only, or a combination of observation and interviews. The remainder of this subsection situates selected research within these four approaches, describing the utility of the approach as it relates to the researcher, participants, and to the project.

When a researcher becomes a participant observer, he or she joins the action by becoming as full a participant as possible; it is an active stance. Karlsson (2007) became a full participant in the diary weblogs she studied. She read the webpages on a daily basis, left comments as appropriate, and interviewed diarists and diary readers. The product of her ethnographic study includes information and observations based on her work with others; it also includes observations about herself as a participant in the sites. Karlsson's (2007) stance as a participant observer was appropriate to her research questions about the readership of diary weblogs, and was facilitated by her similarities with the participants she studied in terms of age, gender, and national ancestry. Such shared similarities between researcher and participants are not a basic requirement for quality ethnographic research; although they may make participation in a text-based online environment less obtrusive, through the shared social conventions that facilitate information exchange online (Walther & Parks, 2002). However, a limitation of full participation is that the presence of the researcher may affect the participants' behavior and lead to erroneous research conclusions (Patton, 2002).

In the observation and interview approaches, the researcher has a more passive relationship to the action. In her ethnographic research on adolescent diary weblog writers, Bortree (2005) took a less active stance by observing the girls' posts and interviewing some of the writers to answer her research questions about their use of the medium and their sense of

privacy. Unlike Karlsson, who shared demographics with her participants, Bortree, an adult, is different from her adolescent participants. This difference could have marked her presence as a participant, causing avenues of research information to be closed to her, or her presence could have affected the data (Patton, 2002). Stern (2003) comments that her attempts to gain informed consent to interview the adolescent girls in her study (see section 4.4), did, in some cases, lead to her being suspected as a possible predator by some of the girls' parents. Since ethnographic researchers crossing significant age boundaries may not be viewed as full participants, they must pick and choose the parts of the method that can assist them in investigating their research questions.

In her study of queer youth, Rak (2005) used observational methods alone to investigate that group's self-presentation in diary weblogs. This stance is similar to the ethnography of writing (Basso, 1974), according to which cultures are explored through their written artifacts. As Basso (1974) points out, written artifacts have both representations of the writer and the reader embedded in the text. They also maintain a form (genre) of construction, in which topic and function can be identified and understood. This process maps nicely on to Rak's use of observational methods, in that her research question was bounded by the use of written (typed) text. Like content analysis, this approach limits the conclusions a researcher can draw about the writer or reader to what is explicitly stated in the data or can be derived from what is stated; thus, it is not appropriate for research projects that are not bounded by the physical elements—including multimedia—of the works. Because the research is tied so tightly to the documents, the outcome is directly related to the factual nature of the information presented in them. In Rak's work, for instance, an adult male presenting himself online as a homosexual teenager could go

undetected if his presentation were consistent and believable. In the offline world, in contrast, his performance would likely have been detected as inauthentic and removed from the data set.

In their study of an HCI class at Stanford University, Schiano et al. (2004) utilized ethnographic interviews to assess bloggers' use of password protection. Their research question related to individual actions rather than to group activities. Thus, the researchers conducted conversational interviews with a fixed set of questions related to blogging and communication media use. While not directly cited in their references, Schiano et al. (2004) appear to have drawn on Rubin and Rubin (1995) in developing their methodology.

Rubin and Rubin (1995) describe interviews as guided conversations, where researcher and participant enter into a conversation in which a limited number of fixed topics will be discussed. As in a regular conversation, the exchange passes back and forth between the researcher and the participant; however, in the interview the researcher guides the exchange so that the topic(s) of the interview are covered to their fullest potential (Rubin & Rubin, 1995). Limitations of this method of data acquisition include the potential for misunderstanding and misinterpretation between the parties, which can skew the data in unexpected ways (Rubin & Rubin, 1995). This accuracy of the participants self-reporting is an additional limitation in that participants may misrepresent their activities either to conceal or impress, or they may not possess the self-awareness necessary to respond (Rubin & Rubin, 1995).

Researcher may preserve the data acquired through interviews by taking notes or recording the interview session (Patton, 2002; Rubin & Rubin 1995). Schiano et al. (2004) do not specify how data were recorded in their face-to-face interviews, although they do note that follow-up interviews were often conducted over the phone or by email (Schiano et al. 2004). Email, by its nature, is self-archiving: It creates an artifact of the asynchronous exchange that can

be preserved. Interview data can become unusable either through incompleteness or inaccuracy, as well as through poorly maintained storage (Rubin & Rubin, 1995).

In Schiano et al. (2004), an additional concern is that the participants were students in a class at the university where two of the four authors taught. This calls in to play issues of power and control between the student interview participants and the researcher conducting the interviews that are not well addressed in the article. Power asymmetry can be even more evident when the interviewer is an adult and/or an instructor, and the interviewees are adolescents/students, and can influence the kinds of answers that the participants give. (For a more detailed discussion of issues of power and control in ethnographic research, see Lincoln & Guba, 2000.)

The above discussion has presented a limited review of the issues that arise when conducting ethnographic research in online spaces or on technological artifacts. Hine (2000) presents a detailed look at these and other issues in her book-length discussion of her ethnographic approach to the internet.

4.3 Surveys

According to Babbie (1998), survey research is one of the most commonly-used modes of observation in the social sciences. Survey research is a form of quantitative research that involves using a measurement instrument to ask questions of participants representative of a population. The questions can range from forced-choice—yes/no, a lot-sometime-never, etc.— to open-ended questions that resemble interviews; the latter are particularly useful when the unit of analysis is the individual (Babbie, 1998). Before questionnaires can be given to participants, the researchers must establish their sampling strategy—how they plan to systematically identify their

sample from the population (Hayes, 2005). The sampling strategy used is as important to the outcome of the survey as is the quality of the questions asked.

The majority of the weblog studies reviewed in this paper that used survey research methodology did so through online survey instruments. The single exception is a study that used a telephone survey (Lenhart & Madden, 2005), and even then the telephone interviewers administering the survey used computer-guided technologies. Both methods are discussed in this section, along with the limitations of each. The sampling strategies used in the studies are also explored and critiqued.

Web surveys differ from other forms of questionnaire primarily in their mode of delivering the questions to the participants. For Viégas (2005), Karlsson (2007), and Qian and Scott (2007), using web-based survey tools was a natural outgrowth of their research focus on weblogs. Each project used a self-administered survey that was completed by the participants, then responses were returned to the researchers electronically, either through email or via survey webpage. However, while these studies used similar survey tools, their sampling strategies were different.

Viégas's (2005) survey study investigated bloggers' perceptions of privacy and their perception of liability when they write about other people in their posts. The survey was administered using an online survey instrument to a sample of 492 bloggers. Viégas (2005) used viral sampling to solicit the volunteer respondents for her survey. Viral sampling is a form of snowball sampling, a nonprobability technique that is common to qualitative research field (Babbie, 1998). In a pure snowball sampling process, one participant would be found and then they would be asked to provide the name of a second potential participant, who would then be asked for the name of the third, and so on. Babbie (1998) states that this method is appropriate

for identifying special population who are difficult to locate by other means. In Viégas's study, the target population was people who blogged regularly.

Viral sampling occurs when solicitations for participants in the research are placed online, and reposted or linked to from other sites on the net. True viral sampling is more a lucky accident than a method that can be planned in advance, although certainly a researcher using online snowball sampling should make contingency plans in case viral status is reached.

In Viégas's (2005) study, viral sampling was achieved when the online solicitations of participants who had been sought via postings to email listserv and weblogs were linked to by other weblogs, forming networked chains similar to those found in non-electronic snowball sampling, and creating the research equivalent of viral marketing (see Leskovec, Adamic, & Huberman, 2007). As with all nonprobability sampling, snowball and viral sampling both tend to be biased toward participants with a special interest in the subjects under study, and if "researchers subsequently report the findings as if they are reflective of a more general population a basic error in sampling practice is being made" (Jankowski & van Selm, 2008)—an error that Viégas did not make, fortunately.

Karlsson (2007) also used an online survey in her research into the characteristics of weblog readers. The population available for her survey—readers of one of the three diary weblogs sites she had identified for analysis—was not large, yet it was readily available with links from the sites to her survey page (Karlsson, 2006b). Babbie (1998, p. 194) refers to the type of sample used in Karlsson's study as "[r]elying on available subjects," and Hayes (2005, p. 36) calls it "convenience sampling." Like viral and snowball sampling, convenience sampling is a nonprobability sampling method that is biased toward those with a special interest in the

research, and results are not generalizable. However, Karlsson's use of convenience sampling for her online survey is appropriate to the specialized focus of her study.

Qian and Scott (2007) also used an online survey distributed to a convenience sample of participants in their study of self-disclosure and anonymity on weblogs. Qian and Scott (2007) used three different methods for reaching their population, resulting, in essence, in three separate samples. First, participants were recruited through advertising posted on major weblog forums, including *BloggerTalk*, *Blogger Forum*, and *Bloggeries*. The second sample was drawn from students at a large university in the Southern United States. To reach this convenience sample, announcements were made in several classes and students were encouraged to participate. Finally, snowball sampling was used to gather additional participants. To participate in the study, volunteers had to be diary bloggers who wrote "about their experiences, observations, thoughts, and feelings" (Qian & Scott 2007, n.p.). Once gathered, the data from this multi-venue sampling scheme were pooled for final analysis, and results were reported in the aggregate. Because it included nonprobability-sampling methods, the study's results are not fully generalizable; however, the multi-venue sampling method produced a more diverse sample than if only one sampling method had been used.

The final study to be discussed differs markedly from the others. The PIAL Project is a division of Pew Research Center, "a nonprofit 'fact tank' that provides information on the issues, attitudes and trends shaping America and the world" (*Pew Internet and American Life Project*, 2008, n.p.). PIAL Projects, such as the one conducted with teen bloggers by Lenhart and Madden (2005), rely on computer-assisted telephone interviewing (Babbie, 1998) in administering the survey and random digit dialing (Hayes, 2005) as a probability sampling strategy. In computer-assisted telephone interviewing, the interviewer reads questions from a computer screen and

enters the participants' responses; based on the response, the computer moves on to the next question, which is then read to the participant (Babbie, 1998). This nonlinear interview process allows additional questions to be asked to solicit finer detailed information than would be possible without such questions. However, if the additional follow-up questions are not needed, based on the participant's response to the triggering question, the follow-up questions are bypassed in the system.

In Lenhart and Madden's (2005) study, "a nationally representative sample of 1,100 teens ages 12-17 and their parents living in continental United States telephone households" were "pulled from previous PIAL projects fielded in 2004 and 2003" (pp. 18-19). Hayes (2005) asserts that true random digit dialing has disadvantages, as the numbers dialed may not be in service, or they may be assigned to businesses or connected to electronic equipment such as computers or fax machines. In fact, the PIAL surveys did not use true random digital dialing; rather, the numbers dialed were drawn using a standard list-assisted random digit dialing method (Lenhart & Madden, 2005). To improve response rates, calls were attempted up to 10 times staggered over time of day and days of the week, until either the maximum number of attempts was reached or the telephone was answered (Lenhart & Madden, 2005). However, even this form of random digit dialing is limited, in that not every person who might qualify for the survey subscribes to telephone service—the homeless, the unemployed, or those using Voice over Internet Protocol (VoIP) systems—and thus may not be reached by this method (Hayes, 2005). Hayes (2005) also notes that cellphone users cannot be reached, as no unified list of cellphone numbers is (yet) available.

In addition, Babbie (1998) identifies two limitations that are relevant to survey research in general. First, the standardization required to administer a survey instrument consistently to a

group of people can lead to superficial coverage of intricate relationships. In order for the questions to be fielded in the same manner each time, specificity tends to be sacrificed for reliability. A second limitation is that survey research does not by its nature allow for contextualizing the social life of the participants. While questionnaires can be used to gather high-level data related to participants social relationships, the interviewer is limited to the questions at hand and therefore is rarely able to develop a feel for a participant's life situation. Even with these limitations, however, survey research methods can be useful tools for both qualitative and quantitative researchers to use in gathering data about participants' practices.

4.4 Ethical Issues in Researching Adolescent Diary Blogs

In addition to methodological challenges, researching the online communication of adolescents raises ethical issues. Children, defined as persons under the legal age, are granted special protection in the United States that requires that informed consent be received from their parent or guardian (Protection of Human Subjects, 2005) before they participate in research involving human subjects. This rule applies to most internet research projects, unless the researcher can demonstrate that the research creates a minimal risk for the children, where the probability of harm or discomfort is no greater than that anticipated in their daily lives (Protection of Human Subjects, 2005). This may be difficult to establish, however, in the case of diary weblogs, in which people often reveal personal and potentially incriminating information (such as their sexual orientation, as found by Huffaker & Calvert, 2005 in their study of adolescent bloggers). In this section, I briefly discuss participant and parental consent for web research as they are filtered through human subjects requirements of institutional review boards.

In describing her initial evaluation of her research venue, Stern (2003) notes that she did not believe she was conducting human subjects research when studying adolescent girls'

homepages. This decision was based on her assessment that the homepages were public documents perceived as such by their creators, owing to the number of audience feedback mechanisms present on the sites (e.g., surveys, email addresses). Stern's analysis draws comparisons to other written artifacts such as letters to the editor, which are considered public and do not require informed consent from their writers before research can be conducted on them (Sveningsson, 2004). However, after working with the data from the adolescent girls' homepages, Stern (2003) began to question if the girls understood that their words were publicly available to anyone with an internet connection. This recalls Viégas's (2005) survey study of adult bloggers' perceptions of privacy, which found that most bloggers had an unrealistic assessment of who their audiences were. This question led Stern to seek interviews with the girls behind the webpages, and to garner parental consent to do so.

Had Stern sought participation of children in offline interviews, she could have followed well-worn steps toward receiving parental permission. Volunteers for the research would have been sought, and the volunteers, in this case the parent/guardian and the child, would have been provided with an informed consent sheet. The informed consent sheet would have described the research, and the researcher—or his or her representative—would have discussed the project with the participants, including answering any questions they may have had, before asking the parent/guardian to sign the consent form (Roberts, Smith, & Pollack, 2004). In research involving children, the parent/guardian's approval is the primary requirement, although it is common practice to ask the children to assent as well (Pellegrini, 2007).

In contrast, the process of acquiring parental permission for adolescent participation in online research can be complicated, to say the least. In online environments, often the only access to the parent/guardian is through the child and the child's homepage, blog, or social

network site, which reverses the rules of contact as outlined above. In her research, Stern (2003) found that adolescents were unwilling to ask for parental permission to be part of a research project. The adolescents had chosen to keep their online lives separate from their interactions with their parents, and were unwilling to give up their personal autonomy by involving their parents in their online lives in any way. Stern (2003) discusses how adolescents clearly delineated their online worlds as outside the purview of parents or school officials. It is not unusual to see an adolescent diary weblog post that ends with a form of the phrase, "I'm glad my parents will never read this." As Chandler and Roberts-Young (2000) have suggested, "[p]erhaps the sense of one's homepages as being part of oneself leads some authors to slip into feeling that it is a purely private dream space" (n.p.).

A further challenge in researching adolescents online, as Nosek, Banaji, and Greenwald (2002) found in their research on MOOs¹⁶, is that identifying underage participants can be difficult without visual cues that the self-identified age they claim is accurate. This complicates attempts to exclude underage participants from adult research, as well as to construct research populations comprised of a particular age group (such as adolescents).

The process for obtaining informed consent for internet research can be convoluted. In her homepage research, Stern (2003) sought printed agreements from the parents/guardians, a process that required the potential participants to print out the form she provided, pass it to the adult, who then had to sign and mail the form to Stern. The steps required to obtain a signed form were onerous and may well have contributed to the low response rate she received.

Other technological possibilities exist for gaining informed connect without placing an undue burden on either the child or the parent/guardian, although none are without the potential risk that the consent was provided by someone other than the adult. Nosek et al. (2002) used

email messages to gain informed consent for the underage MOO participants in their study. Messages were exchanged between the researchers and the parents, and in this way, documentation of the parents' consent was obtained (Nosek et al. 2002). Johns, Chen, and Hall (2003) describe the use of click-through agreements for survey research. While this method is relatively easy and puts no undue burden on the participant or the adult, there is again no way to confirm that the person clicking the "I agree" button is, in fact, the parent/guardian of the child participant in question.

In reviewing the problems associated with gaining informed consent for online research, several scholars have proposed alternative non-technological approaches. In the conclusion to her chapter, Stern (2003) mentions that one possible solution to the complexities she found would be to seek volunteer interview subjects offline through social clubs and schools. However, while there are valid research questions that can be answered using this method, researchers interested in adolescents' lived experiences online are unlikely to find this approach satisfactory. The approach of limiting research to that which can be done with, or about, the researcher's own children, for whom informed consent is not needed, is equally unsatisfying (e.g., Takayoshi, Huot, & Huot, 1999). Another approach is to avoid quoting directly from, or showing images from, the websites analyzed, in order to preserve the site producer's anonymity, either with or without the producer's informed consent, as Huffaker and Calvert (2005) did in their study of adolescent weblogs.

As this brief discussion has shown, the issue of obtaining parental consent for adolescents' participation in research on computer-mediated communication is complicated by factors of identity verification and modes of access, to name but a few, that are somewhat unique to online environments. The situation is unlikely to resolve itself in the near term; thus for

scholars who undertake research projects involving this protected category of participants, the ethical challenge of upholding the autonomy of participants while simultaneously meeting the legal requirements for informed consent is likely to continue.

5. The Relevance of Genre and Weblog Studies to Human-Computer Interaction

Using genre theory as a lens for analyzing and theorizing weblogs touches on several areas of Library and Information Science; this chapter focuses on the relationship among genre theory, weblogs, and human-computer interaction (HCI).

Entire chapters have been written reviewing the many, and varied, definitions of the core subject of study in Library and Information Science (LIS) (e.g., Capurro & Hjørland, 2003). Andersen (2008) moves beyond the idea of a definitive definition of *information* to map out a landscape of study in LIS.

[A]ssume that LIS is the how and with what means professional, scholarly, cultural, and social knowledge as materialized in documents (print or electronic) is communicated in society and what function libraries and other similar knowledge organizing institutions or activities have, or are supposed to have, in these communication processes. (Andersen, 2008, p. 340)

Anderson does not limit the entire field to the study of written (textual) communication forms, noting, "we may not be able to exclude oral communication from LIS research" (2008, p. 361). Certainly, existing LIS genre studies of webpages (e.g., Dillon & Gushrowski, 2000; Kutz & Herring, 2005) would have suffered without the inclusion of non-textual (especially visual) materials in their genre descriptions. Likewise, other studies have applied genre theory to multimedia weblogs, as discussed previously in this paper (e.g., Elkin, 2006; Sorapure, 2003; Trammell et al., 2006; Vaisman, 2006; Ward, 2005).

Digital formats, including web interfaces, are part of what constitute Human Computer Interaction (HCI). In the report of the *ACM Special Interest Group on Computer-Human Interaction Curriculum Development Group* (Hewitt et al., 2008), the authors acknowledge that

there has been no accepted definition of the field of HCI. They propose a working definition of HCI as "a discipline concerned with the design, evaluation, and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them" (Hewitt et al., 2008, Ch. 2.1, n. p.). This makes HCI what Carroll terms a multidisciplinary science (cited in Harrison et al., 2007, p. 16) with roots, in among other fields, "ergonomics, industrial engineering, cognitive psychology, and the systems part of computer science" (Hewitt et al., 2008, Ch. 2.2.1, n. p.).

Computer-Mediated Communication (CMC) is sometimes viewed as a subdivision of HCI. CMC is defined as "communication that takes place between human beings via the instrumentality of computers" (Herring, 1996, p. 1) and falls within the boundaries of Hewitt et al.'s description of the field of HCI (2008). While CMC research may be conducted in any of the branches Hewitt et al. describe, weblog genre research is best situated as a "major phenomen[on] surrounding [interactive computing systems for human use]" (Hewitt et al., 2008, Ch. 2.1, n. p.).

Online communication venues such as weblogs are at their core human-human interaction mediated by a series of intermediaries, including computer hardware and software systems. Often discussions of computer mediation assume that such interactions are somehow inferior or second-class with face-to-face interaction being the ideal form. Hollan and Stornetta (1992) explicitly questioned this stance and posited that all communication is mediated, allowing us to ask, "what's right with a new medium?" rather than the more common obverse (p. 121).

[W]hen we view physically proximate reality as simply a medium, we can ask what requirements it meets well, and also what ones it meets poorly, inefficiently, or not at all. We can then explore new mechanisms to meet those needs, mechanisms which leverage the strengths of the new medium. (Hollan & Stornetta, 1992, p. 121)

The idea of face-to-face communication as a perfect form is a romantic one, but becomes less valid as online environments begin to provide some of the same multimedia inputs found in face-to-face interaction, including sound, and visual representations of the communicators, such as avatars (Damer, 1998).¹⁷

Preece (2000) carries the humanization on online communication into the realm of interaction design when she describes a two-pronged focus on software design (including selection and tailoring) and sociability planning for the purpose of community-centered development. She outlines an iterative process where designing and planning interact with supporting the nascent community and assessing its needs. Powazek (2002) takes a slightly different approach in his "two-tree theory" (p. 46), the components of which are community and content. He states that these two trees must be interlocked in order to develop into a vibrant community. Both of these breakdowns distinguish a technological component (software/content) and a more people centered component (sociability/community). For CMC and HCI, both must be present for interaction to take place.

The application of genre theory to weblogs is particularly well suited to third wave HCI studies in the sense of Harrison, Sengers, and Tater (2007), as it allows for the paradigm analysis of structural elements of documents and can be applied to issues that have proven information-processing procedures. For example, genre theory has been applied to the characteristics of the artifact such as the utilization of interface features (Herring, Scheidt et al., 2006)—a first paradigm question—and has also been used to study third wave requests for an audience's emotional response embedded in the text of weblog entries (Scheidt, 2006).

Anderson (2008) points to Vaughn and Dillon (1998) as one of the first articles to discuss genre theory and its application to online documents. While Vaughn and Dillon's 1998 article

may be among the earliest works produced by LIS or HCI scholars, the discussion of genre and digital documents, including websites, predates their 1998 publication (e.g., Yates & Sumner, 1997 ; Yates & Orlikowski, 1992). It should be noted that Vaughn and Dillon looked primarily to genre theory work from literary and communication disciplines in preparing their argument and did not cite foundational work from either Yates or Orlikowski. While their narrow focus does weaken the article, it does not lessen the import of their central argument, which would have been supported by the genre theory and digital documents publications they did not cite.

Drawing on Swales (1990) and Miller (1984) –the latter unattributed, Vaughn and Dillon (1998) state that "[g]enre can be...social practice, classificatory categories, and the conventions of form and structure" (1998, p. 561). As a social practice (Vaughn & Dillon, 1998), the genre of web documents can assist the HCI researcher in understanding the community and cultural practices that surround a document's use. For a CMC specialist, the social practices that influence a document's genre can be both an evaluation of the use of the document/site/software tool and a glimpse of potential future uses of the same. Development is an iterative process: Often affordances emerge only after users have begun to push existing interfaces into new forms – for example, commenting features in weblogs became routine software affordances only after some weblog writers began posting comments they received through other communicative channels, such as email.

Genre as a classificatory category (Vaughn & Dillon, 1998) has also become an HCI concern, as researchers have explored different systems for search and retrieval. Kwasnik, Crowston, Nilan, and Roussinov (2000) note that

many traditional classification systems have awkwardly tried to describe the genre of a document using schemes that are basically designed to describe topic rather

than form. In other words, traditional systems have asked, 'What is this document about?' rather than 'What type of document is it?' (Kwasnik et al., 2000, n.p.)

Kwasnik et al. posit that a classification scheme based on genre types would allow for the creation of shared nomenclature for the discussion of dissimilar digital artifacts. They further propose a multi-faceted approach to apply genre theory to improve online searching by "identifying genres used on the web", "classifying web genres", developing "software to automatically identify genres", and "genre-based navigation and integrated testing" (Kwasnik et al., 2000, n.p.).

Vaughn and Dillon's "conventions of form and structure" (1998, p. 561) gathers disparate threads of cognitive and mental modeling into an HCI based discussion of genres that spans from Craik's (1943) original work to recent social science work, Lupia et al. (2000) applied the concept of mental modeling to individual and community action. These mental roadmaps allow human beings to make sense of the world around them and to infer about the future, as well as to make appropriate decisions and reactions. However, a mental model is only useful to the extent that it covaries with the world it tries to represent. Norman (1983) puts it rather succinctly when he writes, "These models need not be technically accurate (and usually are not) but they must be functional" (p. 7).

Genre theory and its conventions build upon our human propensity to create mental models of processes around us. In applying genre theory to digital documents, the researcher is seeking to aggregate mental models to identify the recurring parts of their structures. HCI researchers could conceivably apply genre theory to concepts as widely dispersed as the structure of nicknames used in social utilities, such as *Twitter* (<http://twitter.com/>), and designing systems for ease of use based on translating previously experienced forms into the digital world.

In conclusion, "[g]enre, defined as both a social construction and a cognitive function, re-frames our understanding of digital documents to focus not only on the behavioral components but also on the semantic components of interaction" (Vaughn & Dillon, 1998, p. 565). By applying genre theory to digital and online documents such as weblogs, a more complete conceptualization of regularity of the documents can be formed (Vaughn & Dillon, 1998). Or as Anderson stated, "[a]s LIS is interested in how knowledge in documents and other artifacts is organized, genre theory is a productive perspective" (2008, p. 340).

6. Directions for Future Research into Diary Weblogs

Although research on a variety of computer-mediated communication systems has been underway for several decades, diary weblogs are a relatively new phenomenon; as such, numerous research gaps remain. In this section, I identify a few of the many research possibilities that exist related to diary weblogs, and more specifically to adolescent diary weblogs, that if pursued could help advance scholarly understanding of these phenomena. The paper concludes by identifying the research questions and methodologies that I hope to pursue in my doctoral dissertation.

6.1 General Population Diary Weblogs

A number of questions arise from gaps in our knowledge of diary bloggers' multimedia usage. First, Scheidt and Wright (2004) looked at design elements in primarily textual weblogs using data they gathered in 2003. Since 2003, significant changes have been made in blogging capabilities, yet no new study has taken on these basic issues of design across diary weblogs. Updated studies should be completed to provide information about what design and multimedia elements are being used by diary bloggers.

Second, few of the studies available use bloggers themselves as data sources. As a consequence, in most cases, what we know we know only via third-party analysis of the website itself. In analyzing multimedia use in diary weblogs, it would be useful to understand what steps diary bloggers use in making media choices and on what they base their choices.

Finally, as regards issues of language usage in diary weblogs, it would be useful to understand why diarists choose to write their posts in a language other than their native tongue. Another set of questions in need of exploration is when do multilingual diarists move from one language to another, and on what do they base their choices in making language shifts? Herring,

Paolillo et al. (2007) began to explore this issue, but much further research is needed, given that blogging is becoming an increasing global and cross-cultural phenomenon.

6.2 Adolescent Diary Weblogs

Adolescents have been identified as heavy users of cell phones (Madell & Muncer, 2004). To date, however, no research has been done looking at their use of cell phones and other mobile technologies to create moblogging, vlogging, and/or text-based entries. Questions that could be asked include: What mobile technologies do adolescents use in creating diary weblog entries? What media elements are included in adolescent diary weblog creation from mobile platforms? How does their use of mobile platforms affect the character of their weblog entries as regards theme, length, inclusion of others, etc.?

Adolescents born into the internet generation are being conditioned to the consistent presence of digital communication technologies (Tapscott, 2008). Questions that surround this generation's continued use of weblogs include, how does adolescent's blogging change as they move through their adolescent years and into adulthood? Studies addressing these questions would need to apply adolescent development theory through longitudinal studies of weblog behavior, technology use, and theme. Additionally questions of online reputation management exist for this group, the youngest of whom many have had a weblog presence prior to their birth through their mother's use of "Mommy Blogging" (Blanchard & Markus, 2009). How will this ubiquitous presence change their attitudes toward digital technology, including weblogging?

Many questions related to adolescent diary weblogs and gender remain to be investigated. These questions include: How does each gender manage his or her online presences over time? In particular, how do major life changes such as moving from primary to middle school and middle school to high school impact their creation and maintenance of diary weblogs?

6.3 Multimedia Weblogs

Serious scholarship on multimedia blogging of any kind is mostly lacking thus far. New emergent genres need to be defined and characterized, and their uses by different populations described. For example, lifelog diaries are new phenomena about which many questions remain to be answered, including very basic questions of demographics and quantity of users. Also, it would be of interest to understand why the lifeloggers make the choice to record all or some of their lives. Moreover, men have been early adopters of past technologies; is this also the case for multimedia blogs? If so, how does this interact with the trend for diary blogging—and diary writing in general—to be a predominantly female activity?

More generally, there is a need to move from descriptive research to theory construction as regards multimedia blogging. The shift from text to voice and video plausibly has cognitive as well as social effects; these could be investigated using insights from cognitive and social psychology, as well as drawing on theories of communication such as uses and gratifications theory (Rubin, 1986) in order to understand why people choose to express themselves in media of one kind rather than another.

7. Conclusion

This paper has drawn together various bodies of research in an attempt to provide an overall characterization of diary weblogs, the most active writers and readers of whom are adolescents. It has also undertaken to point out where diary weblogs are headed in the wake of an influx of new multimedia technologies and to identify research gaps and suggest directions for future research.

In my own future research, I hope to begin to fill one of those gaps. As noted earlier, research focusing on adolescent boys' use of diary weblogs is thus far nonexistent. In my dissertation research, I plan to investigate how adolescent boys utilize diary weblogs, what forms their posts take using what technological affordances, why they create diary weblogs, and how they coordinate their online presence with their offline lives. In conducting this research, I expect to draw primarily on methods of content analysis and ethnography, supplemented with interviews of adolescent male bloggers. In so doing, I hope to contribute to the growing body of research on an often-misunderstood yet universal human phenomenon: the urge to document one's own life.

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- ¹ While *Merriam Webster* chose to add the abridged term rather than the full term weblog (Blood, 2002), it does mention the etymology in its definition (Blog, 2004).
- ² The *What's New* site is archived at http://home.mcom.com/home/whatsnew/whats_new_0693.html
- ³ Mixed case spelling such as WebLog is sometimes referred to as CamelCase (*Wikipedia*, 2009a).
- ⁴ The *camworld* site is only available as part of the collection of the *Internet Archive* (<http://www.archive.org/>) at <http://web.archive.org/web/19990202092137/http://www.camworld.com/> (*Internet Archive*, 1999b).
- ⁵ The original *diarist.net* website has been subsumed by Burke's current website, *Carolyn's Diary Museum*, and is archived at <http://diary.carolyn.org/Overview.html>
- ⁶ Carolyn L. Burke's January 3, 1995 diary weblog post has been archived separately by *The Online Diary History Project* (<http://www.diaryhistoryproject.com/>) at (http://www.diaryhistoryproject.com/recollections/1995_01_03.html)
- ⁷ The *Links from the Underground* site is only available as part of the collection of the *Internet Archive* (<http://www.archive.org/>) at http://web.archive.org/web/20070814120640re_/www.links.net/
- ⁸ *Trackback* is a weblog feature that allows linking between weblogs that cite posts from another weblog (Wijnia, 2004).
- ⁹ In early 2009, a alarm was sounded online that the closure of *LiveJournal* was near which sent users scrambling to backup their sites. *LiveJournal* is now owned by Sup (Lowensohn, 2007), a Russian firm, who in January 2009 laid off many of the site's U.S. employees (McCathy, 2009; Thomas, 2009). As of this writing (April 20, 2009) *LiveJournal* continues to be available online.
- ¹⁰ Many changes have taken place at *EatonWeb*, including removing the 'teen' category from the website. Previous versions of the site are archived as part of the collection of the *Internet Archive* (<http://www.archive.org/>). See <http://web.archive.org/web/20030611152237/http://portal.eatonweb.com/> for the June 11, 2003 version used in this study (*Internet Archive*, 2003b).
- ¹¹ This statement is somewhat at odds with Driver's (2006) remark that the community members she approached for authorization to use their comments unanimously approved her request.
- ¹² Arnett (2000) defines emerging adulthood as "the period from the late teens through the twenties, with a focus on ages 18-25" (p. 570).
- ¹³ CMS was initially used as an acronym for "content management software." Recently, CMS has been used to refer to "content management systems" which encompasses the growing variety of materials being managed in online and offline environments (Svarre, 2006)— text, still-photos, video, sound, and combinations of these, as well as the software systems used to present and maintain them.
- ¹⁴ RSS has been used as an acronym for "[Resource Description Framework] RDF Site Summary" (Hammersley, 2003), "Rich Site Summary" (Hammersley, 2003), and "Real Simple Syndication" (Winer, 2002). See <http://www.rss-specifications.com/history-rss.htm> for a discussion of the history of RSS, including further information on the various terms.
- ¹⁵ Computer programmer's removal of their lifelogging equipment to protect the proprietary code on which they are working is in marked contacts to Woodward (2001) who produced and sent the first mobile phone picture. The picture focused on his computer screen including the Python program he was coding.
- ¹⁶ For a detailed discussion of MOOs see *Wikipedia* (2009b).
- ¹⁷ Boellstorff (2009) discusses *Second Life* residents' lively debate for and against allowing voice-chat capabilities throughout the world; in particular, see pp. 112-116.