"I'm Blogging This"
A Closer Look at Why People Blog

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Introduction

Weblogs, or *blogs*, are online journals. While definitions vary, we define blogs as a series of archived Internet posts typically characterized by brief texts entered in reverse chronological order and generally containing hypertext links to other sites recommended by the author. Some blogs utilize photos and other media. Blogs combine the immediacy of up-to-the-minute posts, latest first, with a strong sense of the author's personality, expertise, and point of view. Unlike most mainstream journalism in which efforts at objectivity influence presentation, blogs are unabashedly partisan, infused with authors' assessments, assumptions, and attitudes. Blogging has become enormously popular, with an estimated 500,000 sites currently in existence and predicted exponential growth [11].

Much media attention has focused on blogging, in part because it is seen by some as a new, grassroots form of journalism [4]. For example, while the "Baghdad Blogger" had no official media affiliations, his onsite reportage during the war in Iraq was closely followed by Western readers. Blogging has also proved influential in shaping the news. The fall of United States Senator Trent Lott has been attributed to bloggers who exposed Lott's segregationist rhetoric and continued to rally against him despite an initial lack of interest by the institutional media [11]. Howard Dean's bid for the Democratic nomination for President raised millions of dollars in part through "Blog for America," written by Dean's campaign manager, staffers, and guests, with occasional posts from the candidate himself. Blog sites devoted to politics and punditry, and to sharing technical developments (such as Slashdot), receive thousands of hits a day.

Media attention usually goes to these heavy-hitters, but the vast majority of blogs are written by ordinary people for much smaller audiences. In this paper, we report the results of an ethnographic investigation of blogging in a sample of such "ordinary bloggers." We investigate blogging as a form of personal communication, with a specific interest in uncovering a range of motivations that individuals have for creating and maintaining blogs. We discuss implications for improving current blogging tools and how such tools may affect the continuing evolution of the Internet and the ways it is used in everyday life.

Figure One. An image from a blog in our study showing the blogger's daughter in a blogging T-shirt.

Methods and Sample

We conducted audiotaped ethnographic interviews with bloggers, text analysis of blog posts, and quantitative analysis of posts and blogs. We maintained our own class blog to discuss the research and become familiar with blogging ourselves. Interviews were conducted between April and June 2003, inclusive, most in person, some over the phone. The interviews were conversational in style but all covered a fixed set of questions about informants' blogs, blogging habits, thoughts on blogging, and use of other communication media including instant messaging, email, phone, and webpages. Most informants were interviewed at least twice, with follow-ups in person, over the phone, via email, or in instant messaging. We continued to read informants' blogs throughout the writing of this paper (even after the interviews were completed). Twenty-three people, 16 men and 7 women, ranging in age from 19—60, participated in the research. The sample consisted of European-Americans, Asian-Americans, Latinos, and one European. All lived in California or New York. Ten informants were current Stanford undergraduate or graduate students. Others were students and graduates of American universities and one European university. All informants were well-educated, middle-class people either in school or employed in knowledge work or artistic pursuits. We developed the sample by finding blogs hosted in the vicinity of our locality, Stanford University, so that we could interview informants in person. We searched Google's Stanford University portal (http://www.google.com/univ/stanford/) for the words "blog" and "Weblog," creating an initial list of Stanford-hosted blogs. We also contacted a small number of bloggers we knew personally. We then "snowballed" the sample, asking each informant about other bloggers with whom we might speak. Pseudonyms are used when discussing specific informants. We received permission for blog text and images used in this paper.

For the quantitative analysis, we ran a customized script on each of the informant's blogs, extracting the blog text. This analysis was conducted between June 15—23, 2003. We then ran another script to count the number of characters, words, and links in each posting. We characterized each link as either "external" or "internal," where internal links either used relative addressing (that is, they did not start with "http://") or they referred to a file on the same site as the blog (e.g., if the blog was hosted on "http://www.company.com/myblog" then any link beginning with "http://www.company.com/myblog" would be characterized as internal). Using these data, we calculated the number of external and internal links per post and word, as well as the average post length for each blog. The number of blogs is not the same as the number of informants, because some informants had more than one blog (or a blog would be posted to by more than one informant).

For a benchmark quantitative characterization of our informants' blogs, we analyzed a sample of 24 public blogs (some informants had or contributed to more than one) during a 1-week period. Customized scripts were created to extract the blog text for the period of June 15—23, 2003 to estimate the number of words and links in each posting. "External" links were identified as those that used absolute addressing (i.e., they started with <http://>"http://" and did not refer to a file on the same site as the blog); the remaining links were considered "internal". Using this approach, we found that number of posts during the sample period ranged from 3 to 253 (mean = 80), with words per post ranging from 80 to 494 (mean = 209.2). Overall, the number of links per post ranged from 0 to 6 (mean = 1.1), with external links per post ranging from 0 to 5.25 (mean =0.9).

Introduction to Blogging

Blogging History

Blogging has historical precedents in paper journals, diaries, and chronicles. Such documents provide a chronological account with a strong personal point of view and clear sense of audience. In the Middle Ages, to take but one historical example, the renegade activities of the illiterate Basque adventurer Lope de Aguirre were chronicled by several of his men as Aguirre pillaged his way through parts of the New World. These accounts were colored by the need to stay on the good side of the treacherous Aguirre as well as by the writers' notions of what would appeal to their audiences. One enticed his readers: "[Here] you will find cruelty, passion, and incidents arousing great pity…" (quoted in [6]). As we will see, today's bloggers write with just as much attention to audience as did the ancient chroniclers.

In a more modern context, blogging is foreshadowed in Orson Scott Card's science fiction novel *Ender's Game* in which two characters, Peter and Valentine, establish what are essentially political blogs. Though they are only ages twelve and ten, the precocious Peter and Valentine create fictional characters whose political pronouncements come to be taken seriously by a large audience on the "nets." Like today's bloggers, Peter and Valentine search to see who's reading them. They are delighted when "[some of their phrases] showed up in the major debates on the prestige nets." Valentine, who created a politically conservative persona, despairs when she learns that her father, unaware of her character's true identity, expresses his approval of her writing. The crafting of online identity in blogs is predicted by Card in this conversation between Peter and Valentine:

> "Peter, you're twelve."
> "Not on the nets I'm not. On the nets I can name myself anything I want…" [1]

(The New Yorker cartoon, "On the Internet nobody knows you're a dog" would not appear for another eight years.)

If we were to select an official birth year for blogs, it would have to be 1997. In April, Dave Winer, a software developer and creator of the Radio UserLand blog tool, began Scripting News. Scripting News, a record of Winer's reflections on a wide range of topics, is currently the longest-running blog on the Internet. In September, Slashdot—a widely read blog that describes itself as "news for nerds"—was launched. At year's end, Jorn Barger coined the term "weblog," soon shortened in everyday use to blog. Barger publishes Robot Wisdom, one of the first popular blogs. Blogs such as Scripting News and Robot Wisdom act as "Web filters" containing many carefully selected links, as well as commentary, posted in reverse chronological order.

In early 1999, Brigitte Eaton, a Web developer, created the EatonWeb Portal, a list of approximately 50 blogs of which she was aware. All of the blogs on the list had to consist of dated entries, her criterion for a site to be termed a "blog." Most of the blogs contained entries with annotated Web links. In mid-1999, blogging came into its own with the advent of free tools that allowed people to easily create their own blogs. Pitas, the first of these tools, launched in July. In August, Pyra released Blogger, the first major blogging software embraced by the mainstream. Blogger was the impetus for online journaling on a large scale. Bloggers now typed out their thoughts and interesting occurrences from their lives on a frequent basis. Links in blogs did not disappear; they now led to other people's blogs as well as informational websites. There are over 14,000 blogs listed in over 140 countries in over 40 languages on the EatonWeb Portal, and these numbers increase by the day.

Of course we cannot really pin down the origin of blogging with precision. Keeping a set of frequently updated online posts with dated entries does not require any special software for those who know how to use HTML and FTP. Websites with frequently updated annotated links have been on the Internet for years. Several of our informants had started online journals before there were "blogs." For example, one had what he called a "Web journal" on his website in 1995:

> I ha[d] my little…Web journal section, which…ended up being, you know, blogging now but…then it was just the lazy man's digital alternative.

> Once blogging software became available to the public, people were able to take advantage of the new technology rather than having only hand-coding available to maintain weblogs.

Affordances of Blogging Software
Several blogging software packages, some free, some commercial, are available for easy download. This software can be used for purposes other than blogging, such as homepages, although we did not investigate those uses. Our informants used a range of systems including Blogger, MovableType, Xanga, Radio UserLand, and Blurty. Three informants wrote their blogs directly in HTML because they preferred more control over formatting. Some informants had started on Blogger and upgraded to MovableType, a more powerful system. Some used only the most basic features of the blogging software; others used more advanced features to track who was reading their blog, to collect statistics on the number of hits they

received, to discover who linked to their blogs, to change the format of the blog, or to post photos. One informant used his own software to include his location and current MP3 selection on each post. During the course of the research several people moved to the use of more advanced features as their blogging activities developed. Two informants wrote Perl scripts for advanced features such as adding photos and tracking visitors.

Blogging software allows three levels of privacy. The most private blog is password-protected. The most public blog is listed by the user's blog service and will be easily found by the search engines. An unlisted blog is less likely to be found but is not fully private; it is unlisted by the blogging service's directory (similar to an unlisted phone number). Such a blog cannot be found without knowing the URL, although there is a way such blogs can become public. If the blog contains a link that someone clicks on, the new webpage will receive the URL as the "referrer," and it is possible for the "unlisted" blog to be picked up by the search engines. Since most blogs contain links that anyone might click on, unlisted blogs are not secure, although they may remain relatively invisible if they link to sites that few people access and if the links are not activated often. Our sample contained blogs at each level of privacy.

Some blogging software allows comments on each post. The amount of commenting varies, with hundreds of comments on widely read blogs such as those of well-known pundits, to no or minimal commenting on personal blogs read by a few friends.

Blogging Practices
In our study, people typically found blogs through other blogs they were reading, through friends or colleagues telling them about their blogs or those of others, or through inclusion of the blog URL in an instant message profile or a homepage. Blogging software reserves a portion of the screen for lists of blogs and many of the blogs we investigated had a list of other blogs presented to readers. There are also sites devoted to "blogrolling" which select and present interesting blogs.

Some of our informants posted multiple times a day; others posted as little as once a month. Sometimes bloggers poured out their feelings or ideas; other times they struggled to find something to say. One of our informants stopped blogging when he inadvertently hurt the feelings of a friend he had mentioned in his blog. He took down his blog and then put up another. However, he decided against "advertising" the URL in his AOL Instant Messenger profile, as he had been doing previously. Other bloggers experienced "blog burnout" and stopped blogging for long or short periods.

Even in our small sample, we found tremendous diversity in blog content. On the serious side, one of our informants, a graduate student in genetics, regularly posted well-written commentaries on science and health, covering topics such as AIDS, heart disease, the genetics of race and gender, science education, and healthcare policy. His posts were crafted from his daily reading of paper and online newspapers, digests, magazines, and blogs. The posts supplied links to external sites relevant to the day's topics. On the other end of the scale—blog-as-personal-revelation—one blogger, Lara, wrote:

> I've come to realize rather recently that I can't regret that I didn't form any romantic attachments [editor's note: my phrases for such things are always overly-formal to the point of stupidity, and I don't know why or what to use instead, but bear with me] because, at the end of the day, a boyfriend would have taken away from all the awesome things that happened with people in the dorm, and all the great friendships that I formed and that will hopefully continue after this year (if you're reading this blog, you're most likely one of those people). Thinking back to the last couple of years, it's pretty obvious that I was really stifled by my insular, extremely time-consuming group of friends, and part of my discontent stemmed from a relative dearth of fun, casual relationships with interesting people. My friends are great, but they are also tightly-knit to the point of being incestuous, and when I hang out with them it is difficult to maintain the time and energy necessary to play with other people.

Notice that this post, while brutally honest, is hardly unmediated stream of consciousness. The author paused twice to acknowledge the existence of her audience, once with the arch "editor's note" and once to identify audience members as those with whom she had "great friendships." She used the blog to encourage a future connection to those friends. The post is a far cry from an effusion of raw emotion; it is a carefully considered communiqué to a known audience.

Most bloggers are acutely aware of audience, even in flagrantly confessional blogs, calibrating what they will and will not reveal. Many bloggers explained that they have a kind of personal code of ethics that dictates what goes into their blogs, such as never criticizing friends or expressing political opinions that are openly inflammatory. Not that bloggers eschew controversy—quite the opposite—but they typically express themselves in light of their audience. For example, in our study, one blogger of liberal political opinions sometimes wrote posts she knew would irritate her Republican uncle. But she employed language just tactful enough to keep lines of communication open. Another blogger kept his writing suitable for a family audience:

> Yeah…My mom mentioned something that was in [my blog]…my grandma reads it, too; she just got the Internet….It means that I kind of have to censor—less cursing and stuff.

Many of the blogs we analyzed combined thoughtful commentary on serious topics of general interest with revelations of deeply personal experience. Jack, a poet and graduate student in English, wrote:

> I remember one workshop during my freshman year where at the end of the class we were each supposed to read something we liked. A lot of what I'd read in high school was Romantic poetry, so I picked Shelley's "Ode to the West Wind." The other students all got these funny looks on their faces, as if I'd put on a particularly embarrassing outfit, and even the instructor pronounced it "indulgent." The person who read after me—the son, I later discovered, of a famous English professor—read Frank O'Hara's "Why I Am Not a Painter" and they loved it—it was a perfect riposte to my poor taste. I didn't even know who O'Hara was. Bishop, Plath, and Lowell were all people I had to discover in college. I couldn't talk about myself with that weird combination of ego and modesty that seemed required; I was either too much there or not there at all.

Jack's blog was devoted to poetry, including discussion of the ways poetry is shaped by political and social phenomena. His post was a revealing account of a moment in which he was humiliated in front of more sophisticated poetry students and his instructor. While very personal, the account made points about larger issues of snobbery, classism, education, and the subtleties of self-presentation as they play out in the world of poetry. Jack reflected on his life experience in a larger context than Lara, linking his choice of a specific poem presented in a particular setting to wider currents of fashion and hierarchy in poetry circles. The post served his goal of exploring the way poetry is a product of social and political activity, "recogniz[ing] the role of groups and communities in making a context for reading and writing," as he wrote in his blog.

Another blogger, Vivian, nicely mixed the personal and the political:

> I'm just back from vacation to Brazil. While there, I had several changes of political heart. The first involves spam. I was always soft on spam, finding it a minor annoyance, but basically a problem that could be resolved by the delete key. Well, the delete key is no good when you're accessing Webmail from the edge of the Amazon jungle at narrowband speeds. I received 1800 messages while I was away. Approximately 10 percent were mailing lists, 10 percent messages for me, and the rest was spam. I couldn't even find my real email.

Blogging, then, provides scope for an enormous variety of expression within a rather simple and restricted format. In the next section we investigate the reasons people blog.

Why Do People Blog?

We discovered five major motivations for blogging: documenting the author's life, providing commentary and opinions, expressing deeply felt emotions, working out ideas through writing, and forming and maintaining communities or forums. These motivations are by no means mutually exclusive, and can come into play simultaneously.

Blogs as Journals to "Document my Life"

Many informants blogged to record activities and event in their lives. Harriet, a graduate student at Stanford, started her blog to "document my life," as she said, for her family and friends back home in Iceland, as well as for her fellow graduate students at Stanford. Blogs were used by many of our informants as a record to inform and update family, friends, and colleagues via text and/or pictures of the author's activities and whereabouts. Other bloggers used their blogs to document their lives as a personal diary seen

only by the author and possibly a few friends. Depending on the audience and content, a blog could be a diary/journal, a photo album, or a travelogue. A single blog could be used in one or more of these ways.

As in the age-old tradition of diary keeping and journaling, blogging as personal record-keeping stems from the impetus to make note of the events in one's life. Some of these events may seem ordinary to an outside reader, such as things that happened to the author at work or in school. However, the author believed these events held enough importance to record them. As one informant said, "A lot what's [in blogs] is pretty boring drivel..But [in my blog] it's my drivel!" Some people, like Eddie, a Stanford undergraduate, blogged with the goal of recording events for an audience of one—himself:

> [I use it] just to have like a record of like all the stuff that I kinda did? [I]t's just to kind of get a snapshot of where you are in life and maybe like twenty years from now…it's not gonna have like that profound of an impact upon me but it's just kind of one of those like fuzzy memory things, like you might browse through one day and be like, "Hey I actually remember stuff like that."

Eddie was aware that he had a potential audience that stretched beyond himself since his blogs were on the Internet. He circumvented the problem by posting some of his entries as "private," so they were truly records for himself only. But if privacy is desired, why write on the most global medium in human history? Informants who said they were writing for very small audiences explained that they preferred the Internet to paper because typing was faster than writing by hand, and the archive of their posts would be accessible from anywhere. While some were concerned about the longevity of online archives, paper journals were also seen as subject to loss or destruction. Some bloggers made backup copies of their posts on CDs. The ability to access blogs from any Internet connection anywhere was a powerful attraction for many informants.

Others used their blogs to document their lives as way to affirm their very existence. Circulating in the blogosphere is the humorous phrase *blogito ergo sum*. Fred, a Stanford undergraduate, provided an instance of the phenomenon this expression points to, saying that he viewed his blog posts as "verification" of his life:

> A lot of times, it's just for personal reference…to not forget it [events in my life]. […] [Blogging] is one of my many tools of documentation…That's the thing is, I don't actually have any practical purpose …but it's nice to know it's there, just in case. Because if I don't remember it…and there's nothing physical…no remnant of time passing…then, like, how do I prove to myself that I even existed? …or *did* anything?

In a similar vein, Don, a technology consultant, called blogs "be-logs" because he believed blogging was used to "log your being."

This "log of being" took a serious turn for Don when his wife became gravely ill and nearly died. During the time of her illness, Don took over her blog to document her health condition through text and photos. Though it was a difficult period, he found blogging to be an important way to communicate with others:

> [Blogging is helpful] when people's lives are compromised in some way…when [my wife] was sick, [I] was going through [the] hospital with the lens of how can I share this with others?

Keeping family and friends abreast of life events was a key use of blogging, whether the events were quotidian activities or serious episodes such as Don's wife's illness. Tammy, a biostatistician, said she used her blog "kind of as a journal…just to keep people updated. Like, there's a lot of people from college or whatever that I don't keep in touch with very well." Within her blog postings, she included links to photos and relevant websites in order to flesh out her entries. Similarly, Katie, a graduate student in electrical engineering, viewed blogs as "personal journals" and as a means of relating her life to others by telling her continuing story in close to "real-time." Even people such as Evan, whose blog was primarily about scientific subjects, used his blog to let his friends know of his whereabouts, or to report when he had a cold or some other minor disturbance in his life. A number of people, such as Arthur, a Stanford professor, found blogging a superior alternative to sending out mass emails:

> [I started blogging] to communicate with friends and family, as well as [for] professional connections. It's

easier than sending lots of email—"I'll just put it on my blog." It's a way to take care of mass email, rant, speculate…

Several informants said their blogs started when they purchased digital cameras and began to post pictures. We found that blogs as photo albums served to document lives, especially for those far from home or with young children. Harriet wrote her photo captions both in English and Icelandic for the benefit of her family and friends back home. She told us that in Iceland, blogs serving as "baby books" were steadily increasing in popularity because of free software offered to new parents, many of whom were eagerly taking advantage of the opportunity. Michael, a computer science researcher, maintained what he called a "photographic blog" of his son, Kevin:

> [The blog is] a way to dump a whole bunch of stuff…mostly time organized…on what [Kevin]'s been doing. Not updated daily or hourly, like a lot of blogs are. But functions in the same way...lets friends and family know what we've been doing.

As a genre characterized by frequent postings in reverse chronological order, blogs were a natural to be used as travelogues and schedules to inform an audience of the authors' whereabouts—where they'd been, where they were, and where they were going. Many in our study posted pictures from trips and family outings. They would also report on where they were headed, especially if they knew family and friends living in that area, in order to get together with them. In this way, blogs facilitated in-person social connections. Max, a musician in New York, talked about another social reason for blogs:

> [I read my best friends' blogs] not because I wanna…know what's going on in their heads, usually I wanna know—where they're gonna be or what's going on, you know, on any given night or like what happened—if I happen to not go out with them one night. It's usually just, you know, to check up on social events.

Why were blogs used to "document my life" when email or a personal webpage might also have been used? Arthur noted that a blog is physically easier than email. It affords scope for other communications the author might wish to post as well, such as "rants," or speculation. A number of informants observed that the broadcast nature of blogs was crucial: they could put the information out there and no one need respond if they did not wish to. Blogging was seen as less intrusive. No one is "forced to pay attention," observed Lara, as they are with email. Readers go to the blog in a completely "voluntary" manner, when they have time, said a number of our informants.

But then, why not a webpage? A blog is of course a kind of webpage. What drew both writers and readers to blogs was the rhythm of frequent, usually brief posts, with the immediacy of reverse chronological order. A writer could put up something short and sweet, anticipating that her audience would be checking in on her life's events. Readers knew they would be likely to get fresh news of their friends, family, and colleagues, in the restful format of the blog, with no work-related emails hovering; without the intrusion of the distracting materials often found on homepages. Several informants said that homepages were more "static" than blogs, more formal and carefully considered, and somewhat less authentic. Jack summed up this last point saying about webpages, "You don't hear their voice in the same way."

Blogs as Commentary: "A Point of View, not Just Chatter"
While to some blogs are a breakthrough form of democratic self-expression [4], the darker side of the stereotype casts blogs as indulgent chatter of little interest to anyone but the author. Many of our bloggers were sensitive to the latter characterization and pointed out that they blogged to comment on topics they found pertinent and important. A blog, said one, can be "a point of view, not just chatter." Bloggers in our study were motivated by a desire to write their opinions and commentary on topics from art to politics to medical research.

Sam, a consultant on international technical development, was well-informed about information technology in developing countries as well as the politics behind development efforts. He started his blog to comment on a particular international conference but then decided to devote an entire blog to technology in developing countries as a general theme:

> [My blog started as]…a critique on [a]…conference called World Summit on the Information Society, which

was a project that began a few years ago by the International Telecommunications Union...I was kind of interested in the way people reacted to it, putting a lot of resources into this conference, so I started tracking that and I got very discouraged with…what was going on. So I just switched to…information technology in developing countries as a theme [for my blog], so that's really about all I'll…write about, looking at it…from a critical standpoint.

Sam was also interested in blogging to get information to people who might otherwise miss it:

>…Bill Gates was interviewed on television by Bill Moyers and he had made some interesting statements a couple of years ago…I thought it was a very interesting interview about…the needs of technology for certain areas and how…Gates thinks they [personal computers] are inappropriate for other [areas], which surprised a lot of people, that Bill Gates would even say that. So I put in my reaction to that on [the blog] and pointed people to the whole transcript, which was probably the only way people outside the U.S. could've see the content with the comments….So they'll go to the weblog and read my impressions and then they'll see how they can go to the full transcript…Previously, I might've just said "interesting transcript about Bill Gates on this PBS site" [on my website].

Sam noted that with a blog he could provide more complete information plus commentary than he was likely to on his Website.

As we noted, motivations for blogging are not mutually exclusive. Indeed part of the allure of blogs is the brisk easy way they often move from the personal to the profound in sharp well-styled prose. In one post, for example, Alan, a historian of science, started by documenting his life, describing an incident in which his young daughter wanted to watch a Sesame Street clip. He then moved to a commentary on how "DVDs make it very easy treat movies not as whole works, but collections of scenes." He closed with reference to the related matter of John Locke worrying about how numbering Biblical verses would change people's perceptions of the Bible. The entire post smoothly integrated Alan's comments on popular trends, works by other authors, links to websites, and revelation of personal experience.

Alan, whose work on technology and society took place outside academic circles, quipped about his blog, "If you can't be a public intellectual, you can at least be an intellectual in public." Arthur, a Stanford professor in humanities, explained that he had a blog because:

>I guess I'm an amateur rock and cultural critic. I also comment on things that I'd be embarrassed to email to others. I mean [they would think], "Why do I care?" On the blog, you can *be* an amateur rock critic. I think it's great that publishing is free.

Alan and Arthur's blogs provided forums for commentary outside their work communities. Arthur's very traditional field in the humanities was a long way from rock criticism. Alan discussed politics and popular culture, issues that went beyond the focus of his work at a research institute. Some bloggers stayed closer to their home territory. Evan's blog, for example, commented on topics related to his graduate work in science. Whatever the relationship between "day job" and blog, blogging provided an outlet for expressing "a point of view" on topics authors considered much more than just "chatter."

Blogs as Catharsis: "Me Working Out my Own Issues"
A number of informants reported that they blogged as an "outlet" for thoughts and feelings. Sometimes the blog content was patently emotional, as in the post from Lara who described her blog as "me working out my own issues." Undercurrents of more subtle, but nonetheless deeply felt emotion fueled other blogs. Jack observed that he started blogging around the time of the war in Iraq because, despite attending demonstrations and supporting anti-war politicians, he felt "futile" and that "no one was listening." "You can shout but it doesn't matter," he said. Another blogger in our study titled her blog "Shout." She wrote about legal matters of concern to her such as the misapplication of the death penalty. Blogs supported the working out of "issues" that authors felt "obsessive" or "passionate" about. They gave people with deep feelings a place to "shout" or express themselves through writing to an audience.

The format of frequent posts, diary-style, is both outlet and stimulus for working through issues. Often, bloggers turned to the blog as a welcome relief valve, a place to "get closure out of writing," as Lara said of

a well-written post she composed on the death of her grandfather. Another blogger said she blogged because, "I just needed to, like, get it out there." Another said he blogged to "let off steam."

Figure Two. journey into the swamp: where I end and you begin. A blog from our study.

Blog as Muse: "Thinking by Writing"
Bloggers are of course writers. Blogging is an interesting space within which the writerly craft is advanced. Alan observed that once having started a blog, it "forced" him to keep writing, a discipline he deemed important for his work. He said, "I am one of those people for whom writing and thinking are basically synonymous." Evan, a graduate student in genetics, echoed this thought in saying he liked blogging because it was "thinking by writing." He said he often reacted to what he read in the news or scholarly journals and felt a need to see if he really had anything to say about topics that piqued or intrigued him. Writing in the blog allowed him to test his ideas through the act of writing. He found that sometimes he had interesting thoughts to report and sometimes he did not. Jack, the poet, noted that since he was a graduate student, "nobody wants to hear from me yet." He would have liked writing book reviews for magazines, but for the moment, blogging gave him at least a small audience and a chance to "prove to myself that I can do it," (i.e., write). Blogging served as a writing "outlet" for him.

A number of informants, including Jack, Evan, Alan, and Vivian, observed that material in their blogs might have another life in future magazine articles, scholarly research, or other forms of publication. Alan

said that scholars generate a tremendous amount of material that usually stays private but could be a public good. Vivian said of her posts on legal matters, "It's good fodder for your political arguments later on." Jack said he archived his posts himself because he wasn't sure how long they would last on Blogger and he felt that some of them would "continue to be interesting to me."

For bloggers who think by writing, blogging provides two vital advantages: an audience to help shape the writing and an archive of posts, some of which may be valuable in the future. Personal webpages often perform in a similar way, but the audience is far less defined. In our study, bloggers had "regulars" who they knew were reading their posts. The writing could be directed at them, solving one of the key problems of any writing, i.e., knowing who to write for. The fact of having an audience would keep the writing moving along, as the author knew that people were anticipating new posts.

Many bloggers were intrigued with the idea that they might have a larger audience than just their friends. Jack observed that bloggers are "writing for a potentially infinitely large audience." Although not sophisticated about blogging software when he started his blog, during the course of the research Jack discovered some of the tools for checking on who was reading his blog. He told us,

> Some bloggers, myself included, have started to become a little obsessed about doing things like counting visitors and tracing referrals. I installed a SiteMeter on my blog a few weeks ago and find myself constantly checking to see who's visiting my site and how much traffic I have.

The "live audience" and the archives of blogs make them an unusually good medium for "thinking by writing."

Blogs to Build Community: "Getting in Conversation with Each Other Electronically"
People also blog to form and support communities. Two of the blogs in our study supported educational communities and one a community of poets. Another supported a "collective" of people who did not all know one other face to face, but who exchanged political opinions through the blog. We also encountered a work blog at a research institute, but were not allowed to view it because of the proprietary nature of the posts. We expect workplace blogs to increase in number and to become an important form of workplace communication.

Rob, the head of Residential Computing at Stanford, taught a class entitled dorm.net/residentialrhetorics. His intent was to focus on the dorm/residence community to locate the "intersection of residence community and all electronic communication tools." He stated his goal for the class in his personal blog:

> We'll try to take advantage of the general nature of weblogs as "public journals" in using them for personal reflection, in the context of a learning community, on issues that arise in the course, both rhetorical and content-related issues.

Rob required students to conduct field studies on topics related to the use of computer-mediated communication within communities and to write weekly blog postings on assigned topics, as well as to read and comment on other students' blogs. He hoped these assignments would "facilitate the building of the learning community by getting [students] in conversation with each other electronically." And that is what happened. The students found that maintaining blogs and reading their classmates' blogs created a sense of community that would have not been generated within a conventional classroom setting.

Colleen, an academic technology specialist in the Anthropology Department at Stanford, created a blog for an undergraduate archaeology course. The blog allowed the professor to post periodic reports on a class project that involved cataloging artifacts from a late 19th century Chinatown site in San Jose, California. This blog succeeded as an easily updated website but failed to generate community among the students. It was hoped that the blog would reach out to other academics who could interact with the students, but this also failed to happen. Each post allowed students and visitors to leave questions and comments by clicking on the "Discussion" link located at the bottom of the post. Blog postings included photos of artifacts and highlighted an "Artifact of the Week," whose origins were not revealed. This feature was an attempt to stimulate interest in the project to an audience beyond Stanford, especially to the wider community of anthropologists and archaeologists who could share insights and expertise with the class. In the end, only

two comments were received from outside sources and only a few from students. The professor and the teaching assistants made most of the comments. Colleen reported the following reflections on the use of the class blog:

> The faculty was pleased with the publishing part, which helped the Chinatown project to receive more attention from a wider audience. [The professor] was less pleased with the discussion/feedback part of it, her perception was that the weekly postings, which always bring in some new information, would interrupt the discussion flow.

Although the blog had many visitors, even some from the local press who wrote a story about the site, few commented on the posts. The blog functioned primarily as a website. Colleen noted that students did not feel moved, on their own, to comment, and without a course requirement calling for them to do so, they chose not to. As with other electronic media, blogs in themselves are not sufficient to build community.

The most authentic, grass-roots blogging community we studied was that of the poetry bloggers. They self-identified as a community. Comments on blog posts flew back and forth on the blogs, in email, and in person. Jack was a member of a community of poetry bloggers who read and commented on one another's blogs on a regular basis. This community stretched across the United States, but Jack's local community was centralized in the Bay Area. This local community created a well-defined audience of people he might see in person from time to time as well as communicate with electronically. Jack kept a set of links to others' blogs on his blog. He described these links as "map[ping] a community." He observed that blogging involves "community building."

Certain poetry bloggers were "touchstones" of the community because they were known throughout the network and their posts were regularly read and commented on. The poetry bloggers "spoke" to one another through their blogs and discussed poetry and literature, in order to generate "critical discourse." Jack felt that an audience of bloggers was especially rewarding for poets because poets "don't get a lot of rewards." He said that being a part of the community generated "peer pressure" to post regularly because people checked the blogs for new posts. He remarked that there was "a kind of reciprocity expected because [I] read others' blogs so [I] ha[ve] to make [my] contribution."

As with any community, the poetry bloggers' community changed over time. Even in the short duration of our research, a number of the poetry bloggers began to post their original poems, though at first many considered it "egotistical." Jack changed his mind on this issue, and the community became a muse; his poems developed as a "conversation" between himself and other poetry bloggers. Jack began posting his poems on his blog about halfway through the research period, though he had told us in the initial interview he did not post poems, as a blog was not a proper forum. After his change of heart he said:

> I…discovered that allowing myself to post poems was helping me write poems, since I could think of it as material for the blog to be immediately posted, as opposed to being stowed in a drawer somewhere.

Here we see the intersection of "thinking by writing" and community manifested in a poetry blog.

And we see people jostling for attention, as in any community, struggling to be heard and understood by other community members. In explaining that he was now posting poems, Jack said:

> …I'd hit a bit of a rut with the blog, feeling as if I was crafting these long pieces that no one was really responding to, and that others who were producing much shorter, impressionistic pieces were getting more attention. I decided to loosen up a bit, which in part meant lowering my resistance to putting my own poems up.

The poetry bloggers' community also served the very practical needs of finding and staying in touch with like-minded community members. Jack mentioned that there was a poet at Stanford that he would have liked to know before the poet left Stanford, but he never bumped into him. Jack believed that he would probably have located the poet if he had had a blog. Jack also thought his blog would help him stay in touch with his Bay Area community after a planned move to another part of the country so that he would continue to be "part of this community."

The poetry bloggers' community sometimes generated conflict among members, as in any real community. Two conflicts that Jack told us about apparently grew so personal and contentious they were taken out of the blogs and channeled to email. The grievances were not aired in the blogs even though the blogs had become a "partial substitute" for email for many poetry bloggers. The nature of the conflicts was deemed unsuitable for blogs and a switch to email was made (see [7] on media switching). Jack explained that "more emotional communication" could take place within the relatively sheltered confines of electronic mail.

Several Stanford students formed a political blog called "The Cardinal Collective: Fresh Solutions that are Neither Left nor Right." The Cardinal Collective had six members "selected to represent a political spectrum." They enjoyed political debate and exchanging opinions on current news. Each member posted links under "Daily Reading" including publications such as *The Economist, The Christian Science Monitor, The New York Times, Ars Technica, National Review, InstaPundit, The Volokh Conspiracy* (a widely read political blog), *Mother Jones, Reason*, and a selection of Stanford and Berkeley blogs. Only some of the members had met face-to-face; invitation to the blog depended on having interesting political opinions and good writing skills. One member said, "I write not to an audience…we just write to each other, like a round table." Of course "the round table" *was* the audience. The blog clearly was intended was a wider audience as well since it invited people to subscribe and posted site statistics. Some of their posts have been linked to InstaPundit, opening a much wider frame of participation for the Collective.

A number of electronic media support communities including chat [5, 12], group websites [2], listservs [8], and MOOs and MUDs [10]. In the educational blogs in our study, the desire for both information and interactivity was provided more easily with blogs than in other media. Chat, MOOs, and MUDs excel at supporting forums for textual interaction. But they do little in the way of providing easy access to archives, photos, and images. The textual interactions in chats and MUDs typically consist of informal conversation and are usually not worth archiving. By contrast, many blog posts are decently written and very much worth saving, as our informants noted. Websites support rich information but are usually low on interactivity. Blogs combine information and interactivity.

We want to sound a note of caution, however, in claiming that blogs are interactive. In the blogs we studied, often the interaction happened not through blog comments, but in other media, as in the poetry controversy. When blog posts stimulated intense interaction, often the interaction left the blog.

Some informants liked the interaction-at-one-remove provided by blogs. Max said:

> I feel like I can say something in the blog and then have it be sort of be like my safety net, you know? Whereas like in a more immediate and personal like form of impersonal digital communication …I would sort of have to face their reaction, you know? Metaphorically speaking, anyway…two bad things that blogging for me, anyway, endorses, you know, [are] laziness and cowardice.

The limited interactivity of blogs was a feature many valued. Jack noted that a poetry listserv he once participated in was too "adversarial," involving "a high level of invective and rage." Jack felt compelled to lob one message after another when discussion got heated. The diary-like format of a blog seems to induce a gentler, more reflective set of interactions at least on the blog itself. When discussion heats up, it may be removed to other media, leaving the blog a relatively peaceful forum, averting "flames" and open conflict and aggression among community members.

Blogging can be a tool to generate a sense of community among a group of people, be it in the classroom or among people with similar interests. However, a blog does not guarantee community, and community does not happen overnight. Bloggers must express that they encourage comments and feedback on their blog entries, as well as reciprocate this gesture for others.

Design Recommendations
In this section, we suggest implications of our research for improving the design and usefulness of blogging systems.

Integration with Online Communication and Document Management Tools
Blogging is a form of online communication related to, yet distinct from, other online media such as instant messaging, chat, email, and newsgroups. Our informants selected among and switched between different communication media. They also re-used content from one medium in other media, such as cutting text from a blog to send in an email. Creating ways to facilitate this selecting and switching of media for specific messages, i.e., providing an integrated palette of communication tools, will facilitate the use of blogging with other media. For example, it might be useful to provide toolbar icons to allow switching between blogging, email, and IM. In a related vein, the Google toolbar's "Blog This" icon lets users post URLs (and some text) on Blogger. Similarly, Xanga Premium currently allows direct emailing of blog posts.

Informants' interest in re-purposing text also suggests the value of integrating document editing tools, such as spell-checking and enhanced formatting and editing features, with blogging applications. Xanga Premium has some of these editing features; most others do not. A related issue concerns document management, especially attaching a document file to a blog post, as in email, or importing and exporting document files. This issue came home to the authors when we tried to share extensive sets of field notes via our class blog. The notes were created as Word documents on our personal computers, and we tended to share them as files attached to group emails, rather than through blogging. This was more convenient than uploading files to webservers and posting the URLs; especially since some of us did not have easy access to webservers and so could not upload files to the Web. Trying to post the contents of each file would be a particularly unwieldy process, making the posts—and blog—difficult to read and comprehend. Moreover, re-use of the material for further analyses, revisions or for inclusion in a paper is currently much easier when the notes are stored in independent document form.

Photoware
The ability to easily include photographs in blogs was of strong interest to many in our study, especially those blogging to "document my life." Many informants included at least some photos in their blogs, or expressed interest in doing so. Several had blogs devoted largely to photos with captions or brief textual descriptions. The prototypical photoblogs are "baby blogs" and "travel blogs," reminiscent in form and function to a photo-album. Michael attached a large collection of photos with captions—a "photoblog"—to his personal webpage, showing pictures of his son. Alan had a private blog of photos of his children for friends and family only. Katie, and for a time, Harriet, struggled with maintaining and synchronizing two "document my life" blogs, one text-only and the other photos with captions. Each had a digital camera and a Web server, and had tried various methods to manage the ever-increasing number of photos. They attempted to use independently-purchased software (e.g., Trellix) and customized scripts written in Perl or Java. None of these solutions was especially satisfying. Informants even asked us for tips on tools to aid them in them in managing photos!

Helping people deal with digital photos is currently a major challenge for the human-computer interaction community [3,10]. New "photoware" products are emerging (e.g., Adobe's Photoshop Album) to aid the still-cumbersome process of digital photo management. Adding the requirement of working on the Web as well as on one's home computer compounds the problem and the need for better solutions. As of this writing, Blogger permits free posting of one low-resolution picture; a fee is required for more photos, since they must be stored on the Blogger server. Xanga Premium allows for 20 MB of image hosting. None of our informants was willing to pay for this service, but most had other alternatives. They either hosted the photos themselves or did not include photos within the blog. Creating tools to seamlessly support working with a large volume of photos—editing, annotation, and managing both online and offline storage—is a major design challenge for blogging applications, as well as a potential business opportunity (for example, though integration with digital photo services such as Ofoto or Shutterfly).

Finding Information within and across Blogs
Most blogs are organized chronologically, making time-based browsing especially easy. However, for other indices, finding specific information can be difficult. Some applications, like Blogger, allow titles for posts; a few others, such as Moveable Type, also allow the specification of a topic category and/or keywords for post contents. Being able to sort or search by category can be very helpful for the reader browsing or

searching for specific kinds of information, but of course, this ease comes at the expense of the writer who must provide the categories and keywords. Browsing and search can take place within current posts or in archives in most blogging applications. Blog archives may be organized chronologically (most commonly, monthly) or in some cases, by category. These archives can be inflexible; for example, in some cases, archived posts can be accessed and stored either chronologically or by category, but not in both ways. And sometimes information can be lost in the archiving process. For example, titles are often lost when Blogger archives posts. Finally, while search engines may retrieve information from all public sources on the Web, including blogs, it might also be useful to be able to customize search to restrict it to blogs only, as a domain or document type. Google has made progress along these lines for Blogger, but at this point it is not possible to search across blogs hosted by different companies using the various blogging software applications.

Audience Specificity and Privacy

Having a sense of the author's audience is an important aspect of blogging, as we have discussed. Some blogging systems include, or can be enhanced with, "trackback" features, to help writers identify who has been visiting their blog and how they arrived there (e.g., via a search engine or from a link on another's Website). Several of our informants reported using such features, some on a regular basis. Some blogs currently allow specific posts to be coded as "private," for the author's eyes only. However, blog distribution might be further refined, with specific include-, exclude- or "buddy" group lists such as those currently common for instant messaging and email. (This also works at the level of individual posts.) Currently, Xanga Premium includes a "user blocking" feature, which only prevents other users from leaving comments on your posts, not from reading them. Blogger Pro (the premium edition of Blogger) is expected to have a similar function.

Improving "talkback," or comment-posting, tools would facilitate group discussion and conversations between blog writers and readers. Many of our informants included comments on their blogs. (Katie said that she avoided doing so because it took too much time and effort. She was very concerned that comments posted by others would be attributed to her.) Having the option to alert targeted audience members of specific posts, or even whenever a blog is updated, could be very useful. This is currently possible now only in an awkward way (notification of updates requires an RSS feed and special software).

Group Blogs

Small-group blogs in which multiple people contribute to the content, have many design and use issues. Design challenges include ways to make the voice of the individual contributor stand out, while also subsuming multiple voices under a single topic. Educational and work project blogs would especially benefit from features allowing one to identify and sort posts by contributor and topic, and tools enhancing the ability to follow the thread of a particular argument, including its references, links and other "meta-data" (similar to, say, Lotus Notes). This use of blogs was emphasized by Alicia, a director at a research institute. She also noted that a blog could be used to post administrative and scheduling information independently of content, especially for large-group or public blogs organized around a specific topic or event, such as a conference. The "Community Zero" website offers many of these features (such as showing which members of a group are online, chat, and an online photo album), but of course, at a price.

Quality Assurance

While the popularity of individual blogs can be estimated fairly easily in terms of numbers and frequency of visitors, trying to find a useful or interesting or informative blog from among the hundreds of thousands available is not an easy task. MSNBC assures audiences that their blog posts are edited and fact-checked [11]. Personal blogs do not have—or need—that level of scrutiny. Still, it would be an interesting design challenge to consider "quality assurance" techniques for blogs. This might involve, say, asking readers (at the grassroots or even the "panel of experts" level) to sort blogs into related groups, or to recommend, rate, or provide category labels and keywords for them. An initial experiment along these lines is illustrated in the now-defunct Kundi.com, a Webcam portal which included an "interest-meter" feature, in which Webcam watchers could vote to alert others when something interesting was happening on a particular Webcam. Perhaps a similar kind of mechanism, based on subjective assessments of blog readers, might be useful for recommending especially interesting or informative blogs.

General Ease of Use and Website Integration/Management Issues

Finally, we should mention that a number of general ease-of-use issues obtain for current blogging systems. The typical window provided for posts is quite small, limiting the ability of the author to see an entire post in one view, making writing longer posts unwieldy. Other issues have more to do with Website integration and management: While most of the people we talked with now incorporate a link to their blog on their home page, some are using, or considering using, the blog itself as the home page, with links to other pages on the site. Attempting to integrate blogs and other webpages on a site can introduce a number of tool-related issues (such as those concerning frames).

It should be noted that many of the suggestions listed in this section call for integrating functions of other kinds of applications into blogs. Others call for incorporating features available only in paid "premier" editions of one or two current blogging systems. Of course, integrating functions and features into an extant system without sacrificing ease of use is no small feat. The most popular system, Blogger, is also both easiest to use and most limited in features. Several of our informants started with Blogger because it is free, accessible and easy to use. As they gained experience, however, they wanted more advanced features, and either constructed their own or migrated to other more full-featured blogging applications.

Summary

Blogging is a burgeoning form of online communication coming into its own. The results of our study suggest that "ordinary bloggers" blog for a variety of reasons and often for more than one reason. The motivations for blogging that we discovered included: documenting one's life; providing commentary and opinions; working out emotional issues; "thinking by writing"; and promoting conversation and community. Blog content was extremely diverse, ranging from diaries of ordinary daily activities to serious commentaries on political, social, and scientific issues. Blogging appears to be an unusually versatile medium, employed for everything from private spontaneous release of emotion to archivable support of group collaboration and community. As blogging proliferates, this very versatility will be both a challenge and an opportunity for design. Our investigation of blogging is an early look at the dawn of blogging as a mainstream use of the Internet. There is still much work to be done in examining this flourishing phenomenon as it grows and changes.

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